3-J
EVALUATION OF THE NO ACTION ALTERNATIVE

FINAL
ENVIRONMENTAL
IMPACT STATEMENT

Brightwater
Regional Wastewater
Treatment System

APPENDICES

King County Brightwater TREATMENT SYSTEM

Final

Appendix 3-J
Evaluation of the No Action Alternative

August 2003

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King County
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Introduction

King County has prepared a Draft Environmental Impact Statement (Draft EIS) and Final Environmental Impact Statement (Final EIS) on the Brightwater Regional Wastewater Treatment System. The Final EIS is intended to provide decision-makers, regulatory agencies and the public with information regarding the probable significant adverse impacts of the Brightwater proposal and identify alternatives and reasonable mitigation measures.

King County Executive Ron Sims has identified a preferred alternative, which is outlined in the Final EIS. This preferred alternative is for public information only, and is not intended in any way to prejudge the County's final decision, which will be made following the issuance of the Final EIS with accompanying technical appendices, comments on the Draft EIS and responses from King County, and additional supporting information. After issuance of the Final EIS, the King County Executive will select final locations for a treatment plant, marine outfall and associated conveyances.

The County Executive authorized the preparation of a set of Technical Reports, in support of the Final EIS. These reports represent a substantial volume of additional investigation on the identified Brightwater alternatives, as appropriate, to identify probable significant adverse environmental impacts as required by the State Environmental Policy Act (SEPA). The collection of pertinent information and evaluation of impacts and mitigation measures on the Brightwater proposal is an ongoing process. The Final EIS incorporates this updated information and additional analysis of the probable significant adverse environmental impacts of the Brightwater alternatives, along with identification of reasonable mitigation measures. Additional evaluation will continue as part of meeting federal, state and local permitting requirements.

Thus, the readers of this Technical Report should take into account the preliminary nature of the data contained herein, as well as the fact that new information relating to Brightwater may become available as the permit process gets underway. It is released at this time as part of King County's commitment to share information with the public as it is being developed.

Summary

This Technical Memorandum evaluates how the collection system would operate if the Brightwater system is not built. If instead of a new plant to treat north service area flows, Kind County would continue to manage the system to minimize overflows. The system would likely release some volume of untreated wastewater into the Sammamish River in the following years, as shown in Table S-1 (presented in the Analysis Section of this Technical Memorandum). Other receiving waters that would likely be impacted include Lake Sammamish, Lake Washington, Meydenbauer Creek, Green River, and Wilburton Creek.

Table S-1. Volumes of Overflow Projected in a Twenty-year Storm

Year	Overflow Volumes (in millions of gallons)
2010	0
2013	16
2015	28
2020	60

As the system attempts to transfer flows south to the South Treatment Plant, segments of the East Side Interceptor would reach capacity, as shown in Table S-2 (presented in the Analysis Section of this Technical Memorandum).

Table S-2. Year Flow Exceeds East Side Interceptor Segments Capacity

East Side Interceptor Segment	Year Capacity Exceeds 20-Year Storm
ESI 10	2010
ESI 9	2008
ESI 8	2014
ESI 5-7	2009
ESI 4, RO2-27 TO RO2-18	2009
ESI 4 RO2-23 TO RO2-28	2019
ESI 3	2007
ESI 2	2008
ESI 1 RO1-32 TO RO1-19	2012
ESI 1 RO1-32 TO RO1-01	2008

In addition to the conveyance system reaching capacity, the liquid and solid treatment capacities at the South Treatment Plant and the solid treatment capacity of the West Point Treatment Plant would be exceeded. As a result, overflows could occur from the South Treatment Plant into the Green River and both treatment plants could begin to be out of compliance with effluent permit standards.

Purpose

This memorandum evaluates the Brightwater No Action Alternative in which the Brightwater Regional Wastewater Treatment System is not built and all other programs and capital improvement projects recommended in the Regional Wastewater Services Plan (RWSP) are implemented. This includes the implementation of the inflow/infiltration reduction program, water reuse, the combined sewer overflow reduction program, conveyance system improvements, and solids handling improvements at the West Point Treatment Plant.

If the Brightwater System is not built and no other capital improvements are made other than those identified in the RWSP, elements of the system would reach capacity as the flow increases and untreated wastewater would discharge from the system in uncontrolled overland overflows with increasing frequency. This memorandum analyzes the frequency, volume, and location of these discharges. Additionally, the existing treatment plants would reach capacity to treat wastewater.

This memorandum does not address why the Brightwater System is needed or alternatives to the Brightwater System. This analysis was completed for the RWSP and is included in that document, the RWSP EIS and other documents. The RWSP mandated the development of the Brightwater System to provide conveyance and treatment capacity and conveyance flexibility in the north end so as to prevent the negative effects associated with the No Action Alternative.

Background

In the RWSP, adopted in 1999 by the King County Council, it was projected that the County's wastewater system would reach capacity in about ten years. Some system components were identified as at capacity as evidenced by then recent overflows during storms. The analysis concluded that if new wastewater facilities were not in operation as planned, there would be a number of adverse impacts on public health and water quality. The RWSP Final EIS identified the general impacts to each of the following areas: Earth, Air, Water, Biological Resources, Public Services, Utilities and Energy, Environmental Health, Noise, Land and Shoreline Use, Recreation, Aesthetics, Transportation, and Cultural Resources. The impacts noted in the RWSP Final EIS are:

- Increased potential for wastewater overflows into streets, homes, and businesses during heavy rain storms
- Closures of public swimming beaches and decertification of shellfish harvesting areas
- Degradation of receiving water aesthetics and beneficial uses
- Regulatory fines and enforcement orders for non-compliance with permit discharge limits
- Regulatory sanctions such as building moratoria and bans on sewer hook-ups in designated growth areas
- Liability for not fulfilling contractual obligations to receive wastewater flows from cities and sewer districts
- Failure to support King County Comprehensive Plan adopted vision and land use

Similarly, the Brightwater Draft EIS stated that the additional capacity provided by the Brightwater System will help to preserve the region's water quality and protect public health and safety. For the No Action Alternative, the elements in the environment were again evaluated. The impact in the Draft EIS was characterized by the following points with the assumption that other RWSP programs and projects would continue:

- Untreated overflows increase

- Degradation of environment and potential harm to public health
- Building moratorium

Approach

To complete this analysis data was collection with analysis on four elements.

- System component capacity. This is how much sewage a system component (either pipe or pump station) have the capacity to deliver. This information is included in the Existing System
- System overflow management procedures. This procedure describes how operations staff determine when to manually direct flows and is included in the System Overflow Management Procedures Section
- Future flow projections. A separate Technical Memorandum titled, Flow and Population Projections updates the RWSP future flow projections
- Analysis of future flows. This information is included in the Analysis Section

Existing System

The existing King County wastewater conveyance system is built of many components each with a capacity unique to the facility or segment of pipe. All the system components work together to deliver the flows to the treatment plants. As the flow proceeds from the north to the South Treatment Plant, the wastewater flow increases. Each component has a unique design/storm flow and capacity. The King County design standard requires a conveyance system to have the capacity to convey a 20-year peak flow event (a flow event that is estimated to occur once every 20 years). To ensure that this standard is maintained, King County requires the following design standards for the pump stations (the most critical and sensitive elements of the conveyance system):

- A minimum firm capacity (pumping capacity with the largest pump out of service) to pump flows during a 5-year peak flow event
- A minimum peak capacity (pumping capacity with all pumps in service) to pump flows during a 20-year peak flow event
- An on-site backup generator to provide power for firm pumping capacity if the primary power feed is not available
- Backup control systems. The control system is responsible for turning pumps on/off and varying the pumping rate to match incoming flows

Understanding the system component's capacity assists operation staff in managing flows during a storm event. When an element of the system's pipelines and pump stations reaches capacity, wastewater may overflow and discharge out of the system into the environment.

There are a number of King County conveyance lines and facilities that could be affected by the Brightwater No Action Alternative. These facilities include a number of pump stations (Tables 1 and 2), storage facilities (Table 3) and major trunks and interceptors (Table 4). The

pump stations are listed in order of their general geographic location, north to south. The capacity of trunks and interceptors is dependant on pipe diameter and slope. Within each trunk and interceptor the capacity of each pipe segment between manholes may be different. Table 4 identifies the minimum capacity of each segment within the facility.

The system has a number of overflow structures which provide for overflows from pump stations into water bodies. However, the interceptor system that serve areas with separated storm and sanitary sewers (e.g. the Brightwater Service Area) were not constructed with overflow structures. High flows in the interceptors could result in overland discharges from manholes or the flows could backup into pump stations in the service area and result in overflows from these facilities.

Table 3. Pump Station Capacity

Pump Station	Address	Firm Capacity[1] (mgd)
Kenmore	6719 NE 175th St Kenmore	18
North Creek	18707 N Creek Pkwy Bothell	36
Woodinville	12900 Woodinville-Duvall Rd Woodinville	18
Hollywood	14815 NE 124th St Redmond	14
York	14120 NE 124th St Redmond	58
Juanita Bay	9290 Juanita Drive NE Kirkland	15.8
Kirkland	3rd St & Park Lane Kirkland	6
Yarrow Bay	4400 Lake Washington Blvd NE Kirkland	1.5
Sunset	3730 W Lake Sammamish Pkwy SE Bellevue	21.6
Heathfield	3541 163rd Ave SE Bellevue	21.6
Medina	NE 8th St & 81st Ave NE Medina	5.3
Wilburton	SE 10th St & 121st Ave SE Bellevue	7.8
Bellevue	595 102 Ave SE Bellevue	9.2
Sweyolocken	3100 Bellevue Way SE Bellevue	16.8
North Mercer	7631 SE 22nd St Mercer Island	6
South Mercer	East Mercer Way & SE 72nd St Mercer Island	11.6

[1] Firm capacity is defined as the ability of a pump station to convey a five year storm with the largest pump out of service..

Table 4. Pump Station Overflow Elevations and Locations

Pump Station	Overflow Elevation[1] (feet)	Controlled Overflow Location
Kenmore	116.5	Sammamish River at manhole W11-51A
North Creek	112.5	Sammamish River at manhole W11-83
Woodinville	117.0	Sammamish River through a 24-inch diameter overflow line from manhole W11-101 (Appendix A.1)
Hollywood	124.2	Sammamish River through a 30-inch diameter overflow line from manhole R19-9 (Appendix A.2)
York	120.0	Sammamish River through a 30-inch diameter overflow line from manhole R19-9 (Appendix A.2)
Juanita Bay	114.0	Lake Washington at the Holmes Point overflow manhole (Appendix A.3)
Kirkland	123.3	Lake Washington through a 48-inch diameter local storm sewer from an overflow structure (Appendix A.4)
Yarrow Bay	115.5	Lake Washington through an 18-inch diameter overflow line and 24-inch flap gate at manhole R16-1 (Appendix A.5)
Sunset	128.0	Lake Sammamish through two 30-inch diameter overflow lines from manholes R17-20 and R17-23 (Appendix A.6a, 6b)
Heathfield	163.0	Lake Sammamish through a 48-inch diameter storm drain adjacent to pump station (Appendix A.6)
Medina	139.0	Lake Washington through a 12-inch diameter overflow line to a local sewer manhole (Appendix A.7)
Wilburton	122.5	Mercer Slough through a 24-inch diameter overflow line 300 feet long starting from the NW corner of the station (Appendix A.8)
Bellevue	119.1	Meydenbauer Slough through a 24-inch diameter overflow line from emergency relief manhole (Appendix A.9)
Sweyolocken	116.0	Mercer Slough through a 30-inch diameter overflow line at manhole R09-1 (Appendix A.10)
North Mercer	113.0	Lake Washington through a 42-inch diameter storm sewer from manhole R08G-30 (Appendix A.11)
South Mercer	116.0	Lake Washington through a 24-inch diameter line from pump station (Appendix A.12)

[1] The overflow elevation is the elevation of the water surface within the conveyance system at which a controlled overflow occurs.

Table 5. Off-line Storage Facility Capacity

Storage Facility	Location	Volume
Logboom	Between Kenmore PS and Logboom RS	4 MG
North Creek	Adjacent to North Creek PS	6 MG

Table 6. Trunks and Interceptors with Identified Capacity

Facility	Length (feet)	Diameter (inches)	Full Pipe Capacity (mgd)
Inglewood Interceptor	427	27	11
North Creek Trunk (W11-86 to W85-16)	6,371	42	39
Kenmore Interceptor – Section 5 (W11-48 to W11-78)	16,031	60-78	31
Bothell-Woodinville Interceptor (W11-78 to W11-86)	4,685	60-84	39
Bothell-Woodinville Interceptor (W11-86 to W11-100)	5,257	30-42	12
Kenmore Lake Line (W11-38 to W11-01)	24,150	48	16
Sammamish Valley Interceptor (W11-99 to W11-152)	18,589	16-42	16
Redmond Interceptor (RO2-91 to RO2-103)	5,723	72	49
Juanita Interceptor (RO2-91 to RO2-77)	7,458	72-78	52
Eastside Interceptor			
Section 1 (R01-01 to RO1-13)	9,100	108-120	230
Section 1(RO1-16 to RO1-32	5131	108	213
Section 2 (RO1-32 to RO2-17)	9,033	96	173
Section 3 (RO2-17 to RO2-18)	3,741	96	178
Section 4 (RO2-18 to RO2-27)	6,161	84-96	177
Section 5-7 (RO2-27-RO2-29)	12,004	42-78	137
Section 8 (RO2-29 to RO2-30)	5,658	90	182
Section 9 (RO2-30 to RO2-39)	4,575	72	110
Section 10 (RO2-39 to RO2-39A)	2,632	72	160
Section 11 (RO2-39A to RO2-39C)	1,900	16-48	95
Section 12 (RO2-39C to RO2-44)	4,073	72	225
Section 13 (RO2-44 to RO2-51)	5,511	60-72	103
Section 14 (RO2-51 to RO2-77)	18,504	60-84	78

The King County conveyance system is divided into an East and West Division, with the East Division conveying flow to the South Treatment Plant in Renton and the West Division conveying flows to the West Point Treatment Plant in Seattle. Operations staff have the ability to send flows in the area of Woodinville, Bothell, and Mill Creek to either treatment

plant. This capability gives the staff the ability to direct flows to system elements that have not reached their full capacity.

When all system elements have reached capacity, the County has the ability to manage or control the overflow location by opening gates and/or reducing capacity of an existing pump station.

System Overflow Management Procedures

Each storm event and the collection system's capability to respond to a given storm event will be different. The King County system is a flexible system that allows the County to respond differently to each significant storm event. Each significant storm event that impacts the system is unique, because the collection system serves a large area. Rainfall patterns, snow melt, and groundwater infiltration are not uniform throughout the collection system and are different for each storm.

When flows exceed the conveyance system capacity, both uncontrolled overland overflows and managed controlled overflows may occur. Managed controlled overflows are those overflows that are released from the King County conveyance system through overflow structures located at pump stations designed to minimize overflow effects to property and the environment. This action would only occur after the conveyance system capacity has been exceeded. Operation staff usually needs to manually change the system configuration such as opening a gate or reducing a pump station's capacity to cause a managed controlled overflow. Uncontrolled overland overflows are those that are released from the County system at a hydraulic low point. This happens without operation staff action in areas that were not designed for a release, such as manholes.

King County's overflow policy is to initiate management of an overflow when an uncontrolled overflow has begun to occur. When an uncontrolled overflow occurs, King County may manage the overflow by open/closing gates, regulating pump station flow to direct the overflow to an area that will minimize impact. King County attempts to minimize environmental, public health and property damage impacts by directing overflows preferentially according to the following hierarchy[1]:

- Puget Sound marine waters
- Fresh water lake
- Fresh water river/creek
- Land

Facility Specific Overflow Management Procedure

The County's procedure to manage a storm event is storm specific, but is described in this section in general terms. Figure 1 shows the location of the facilities. Management procedures are described for segments of the conveyance system and pump stations.

[1] Emergency Flow Management Protocol, King County Department of Natural Resources and Parks, June 2001, Publication 1324

Associated with the descriptions are references to associated appendices which include figures locating the items and overflow data. The overflow data is information about the consequence of an overflow at a location. This is referred to as criticality data (refer to Appendix A for further explanation of criticality data). The gravity conveyance system criticality data presented in the appendix represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event. Pump station criticality data presented does represent the actual location of an overflow. At locations where a pump station overflows through a local system, King County has not assessed the criticality of the location.

Kenmore Interceptor

When the Kenmore Pump Station (capacity 18 mgd) output reaches 16 mgd (Kenmore Lake Line's capacity is 26 mgd, 10 mgd allocated for Lyon/McAleer flows and 16 mgd allocated for Kenmore flows), flows are diverted into the Logboom Storage Facility. The initiation of flow storage prior to the Kenmore Pump Station reaching its 18 mgd capacity is to prevent uncontrolled overflows from the Kenmore Interceptor occurring downstream from the Kenmore Pump Station into Lake Washington and/or overland. The Kenmore Lake Line conveys flow not only from the Kenmore Pump Station, but also from the McAleer/Lyon Trunk and Sheridan Beach neighborhood of Seattle. The Kenmore Pump Station and Logboom Storage Facility are the only facilities that have the ability to control flows entering the Kenmore Lake Line.

When the Logboom Storage Facility is full, or flows reaching the Kenmore Pump Station are greater than the station pumping capacity, excess flows are stored upstream of the Kenmore Pump Station by surcharging (filling) the Kenmore Interceptor Section 5 and the Bothell-Woodinville Interceptor. This can lead to an uncontrolled overflow as described in Appendix A.13. If levels in the Kenmore Interceptor Section 5 and the Bothell-Woodinville Interceptor begin to surcharge, operations staff could take the following actions:

- Verify that the York Pump Station is operating and the Hollywood Pump Station is offline. This will divert up to 58 mgd from the Kenmore Lake Line and the West Point Treatment Plant to the East Side Interceptor (ESI) and the South Treatment Plant
- Turn on the North Creek Pump Station. This will divert up to 36 mgd from the Kenmore Section 5 Interceptor and the Bothell-Woodinville Interceptor to the York Pump Station. From the York Pump Station the flows go to the ESI and the South Treatment Plant
- Verify that the 6 MG North Creek Storage Facility is available for flow storage. Manually enable the facility if it is not automatically filling

If an uncontrolled overflow occurs from the Kenmore Interceptor Section 5, operations staff could initiate the following procedures to manage the overflow and reduce impacts to public health, public and private property, and the environment..

1. Verify that the North Creek Pump Station is pumping at 36 mgd to the York Pump Station. If the North Creek Pump Station's pumping capacity is limited or more than 36 mgd is flowing to the North Creek Diversion Structure, the wastewater flows at the North Creek Diversion Structure should be reduced. This

could be accomplished by reducing the capacity of the Woodinville Pump Station and preparing the Woodinville Pump Station overflow structure for use.

2. Verify that the Kenmore/Bothell Gate located at the North Creek Pump Station is open. This would allow for unrestricted flow of wastewater into the North Creek Pump Station from the Kenmore system. This would only assist in managing the overflows if flows reaching the North Creek Pump Station are less than 36 mgd.

3. Verify that the North Creek Storage Facility is full or being filled.

4. Verify that the York Pump Station is pumping 58 mgd to the ESI. If the York Pump Station's full pumping capacity is not available, consider maintaining the system operating as described above and prepare the Hollywood Overflow Structure for use. Normally this structure is gated. Removing the gate will allow an overflow to the Sammamish River at this location. Prior to opening the gate, confirm that the North Creek Storage facility is full. Note that flows transferred out of the Kenmore/North Creek basins due to overflowing conditions may result in an overflow elsewhere. An case-by-case evaluation needs to conducted to determine the potential overflow impacts along the ESI by operating the York Pump Station at full capacity in comparison with overflow impacts along the North Lake Sammamish Interceptor as a result of reducing the York Pump Station capacity. The North Lake Sammamish Interceptor may become surcharged and result in an uncontrolled overflow at the Hollywood Overflow Structure or an uncontrolled overland overflows along the Sammamish Valley Interceptor.

Inglewood Interceptor

The Inglewood Interceptor is generally the location where excess surcharging of the Kenmore Interceptor would result in an uncontrolled overland overflow. These overflows may occur as described in Appendix A.14. Operations staff's actions to stop the uncontrolled overland overflow would be the same procedure as for the Kenmore Interceptor.

Bothell-Woodinville Interceptor

When the Bothell-Woodinville Interceptor capacity is exceeded, operations staff could take the following measures listed below to manage an overflow. The interceptor overflows are the result of capacity restrictions in the Kenmore Lake Line, resulting in off-line storage in the Logboom facility and in-line storage in the Kenmore Interceptor and Bothell-Woodinville Interceptor. Overland overflows may then occur as located and described in Appendix A.15.

- Confirm that the York Pump Station is operating at capacity of 58 mgd pumping flows out of the Redmond basin
- If the York Pump Station is operating and flow must be discharged to prevent uncontrolled overflows downstream of Woodinville Pump Station, the capacity of the Woodinville Pump Station should be reduced and the Woodinville Pump Station overflow structure (discharging into the Sammamish River) be prepared for use

North Creek Trunk

King County does not operate or control any facility that discharges into the North Creek Trunk which receives all its flow from local sewers. Therefore, operations staff have limited capabilities to reduce flows and manage overflows. In this area, some flow reductions may

be possible through cooperation with local sewer agencies and the public. Uncontrolled overland overflows may occur when the interceptor capacity is exceeded as a result of a storm event as shown in Appendix A.23.

Sammamish Valley Interceptor

If the Sammamish Valley Interceptor becomes surcharged, operations staff would start the York Pump Station, shut down the Hollywood Pump Station and transfer the Sammamish Valley Interceptor flows south to the South Treatment Plant via the ESI. If it was not possible to operate the York Pump Station for other reasons, such as capacity constraints in the ESI, Juanita or Redmond Interceptors, the capacity of the Hollywood Pump Station could be reduced. The flows would then be stored above the Hollywood Pump Station with potential overflows occurring at the Hollywood Pump Station overflow structure into the Sammamish River as shown in Appendix A.16.

East Side Interceptor

If capacity issues arise in the ESI, general procedures can be followed. However, each storm response is specific due to two time dependent issues that influence overflow management.

- Peak flows attenuate or smooth out during the eight to ten-hour transit time required for wastewater that enters the ESI in the Bothell/Woodinville area to reach the South Treatment Plant. In other words, the ratio of average flow to peak flow (e.g. peaking factor) decreases as the flows move south. If surcharging and an uncontrolled overflow occurs, it would be important for operations staff to reduce the flows entering the ESI as near as possible to the area that has reached capacity. Because of the length of the ESI, flow reductions in the northern portion may take hours to have an impact
- The second timing issue is the ability for operations staff to drive to a pump station. Manual operation is required at pump stations to reduce capacity or open gates resulting in managed controlled overflows. The east side of King County is known for traffic problems which become exacerbated during rainstorms. Traveling to the various facilities may take from one to two hours

ESI Section 1 – 4

Uncontrolled overland overflows could occur as described in Appendix A.17. If capacity problems arise in the ESI Sections 1 through 4, the capacity of the South Mercer Pump Station could be reduced resulting in a managed controlled overflow into Lake Washington. If additional flow reductions were needed to stop uncontrolled overland overflows, operations staff could move northward shutting down facilities until the necessary flow reduction was achieved. King County pump stations with managed reduction of capacity, could direct a managed controlled overflow into Lake Washington listed geographically northward from the ESI Section 1 – 4 are: North Mercer, Bellevue, Medina, Sunset, Yarrow Bay, Kirkland and Juanita Bay Pump Stations. Of these facilities, Juanita Bay and Sunset Pump Stations have the largest pumping capacity.

Other pump stations operated by King County which discharge into this section of the ESI are Sweyolocken, Wilburton and Heathfield Pump Stations. These pump stations have overflow structures that discharge into streams, sloughs, or have other attributes making managed controlled overflows at these locations a lower priority.

ESI Section 5 - 8

Uncontrolled overland overflows could occur as described in Appendix A.18. For capacity problems in the ESI Sections 5 – 8, the primary King County pump stations that could be shutdown to reduce volume in the interceptor and result in managed controlled overflow would be Bellevue and North Mercer Pump Stations. If additional flow reduction was needed to stop uncontrolled overland overflows, operations staff could move northward as described previously for the ESI Sections 1 – 4.

ESI Section 9 – 12

Uncontrolled overland overflows could occur as described in Appendix A.19. The primary King County pump station that could reduce flows in this area of the ESI is the Medina Pump Station. If further reductions were needed to stop uncontrolled overland overflows, operation staff could move northward as previously described. If the capacity problems were north of the ESI Section 10, flow reductions from the Sunset Pump Station would have less effect than reducing the Medina Pump Station flows because the Sunset Pump Station discharges into the ESI Section 13. Removing flow from down gradient of the surcharge point would have less benefit than removing flow from up gradient of the capacity restricted area.

ESI Section 13 – 14

Uncontrolled overland overflows could occur as described in Appendix A.20. The Kirkland Pump Station would be the primary place to implement flow reductions resulting in a managed controlled overflow into Lake Washington. If additional flow reductions were necessary, the capacity of the Juanita Bay Pump Station could be reduced by operations staff, resulting in a managed controlled overflow into Lake Washington. Other flow reductions at the York and North Creek Pump Stations would likely result in overflows into streams and possibly overland overflows in the Kenmore area. Both the stream and land overflows are a lower priority location than overflow into fresh water lakes.

Juanita Interceptor

During periods of high flows when the York Pump Station is operating, capacity restrictions in the Juanita Interceptor may start an uncontrolled overflow as described in Appendix A.22. Upon indication that the Juanita Interceptor is surcharged and/or overflowing, operations staff could reduce the pumping capacity of the York Pump Station and/or Juanita Bay Pump Station to prevent uncontrolled overland overflows. Selection of the pump station where capacity could be reduced would depend on the specific flows during each storm event. If the York Pump Station is required to remain operational to reduce high flows in the Kenmore Interceptor, Kenmore Lake Line, or other areas, the capacity of the Juanita Bay Pump Station would be selected for capacity reduction. This action may result in a managed controlled overflow at Holmes Point into Lake Washington.

Redmond Interceptor

During high flows when the York Pump Station is operating, the Redmond Interceptor may become surcharged and overflow as described in Appendix A.21. Operations staff would assess the need to keep the York Pump Station operating at full capacity thereby preventing overflows or surcharges in the Sammamish Valley interceptor system. If the York Pump Station capacity is reduced, overflows will occur in the Sammamish Valley Interceptor system with possible overflows into the Sammamish River. If the York Pump Station pumping capacity cannot be reduced, the Juanita Bay Pump Station capacity would be

reduced. This may not have the full desired effect of reducing overflows in the Redmond Interceptor as the Juanita Pump Station discharges into the down gradient portion of the Redmond Interceptor and will have little impact on up gradient portions of the interceptor.

Analysis

King County has developed a wastewater flow computer model. The inflow/infiltration computer model simulates base wastewater flow (on ten-minute increments throughout the day), dry-weather infiltration, wet-weather inflow, and wet-weather infiltration. King County's hydraulic routing model simulates flow throughout the King County conveyance system. The computer model incorporates the hydraulic equations that simulate unsteady flow, backwater, drawdown, storage, gate control, and pump station control as they would occur in the existing conveyance system.

To understand how the existing King County wastewater system might respond to increased flows without the Brightwater facilities, the conveyance system was simulated using the infiltration/inflow computer model. Peak flow hydrographs were generated which correspond to large extended rainfall events. These hydrographs were then used to estimate peak flows and storage/overflows at various points in the system based on the overflow management procedure previously described. The modeling was first completed during the RWSP and recently validated for use with current flow projections.

The computer model calibration and validation during the RWSP consisted of dividing the system into eighteen sewer basins. The model was calibrated using actual flow and/or depths at eight locations in the conveyance system. A historical rainfall record spanning forty-three years was used and run through the model to determine peak flows at each part of the sewer system.

Population forecasts from the Puget Sound Regional Council (PSRC) were used to project future base flows by decade. Additional discussion of the population and flow forecasts are found in the Brightwater Final EIS Appendix 2-A, Population and Flow Analysis.

Results

Results from the computer modeling indicate the year system components would reach capacity, the frequency of overflows, and volume of overflows.

Capacity

The analysis and current experience show that pipe capacity is usually first reached in the Kenmore Interceptor. At that point, flows can be managed and controlled by being diverted into the ESI. Segments of the ESI reach capacity at various years as indicated in Table 5 based on a maximum of 16 mgd entering the Kenmore Lake Line from the Kenmore area.

Table 7. Year Flow Exceeds East Side Interceptor Segments Capacity

East Side Interceptor Segment	Year Capacity Exceeds 20-Year Storm
ESI 10	2010
ESI 9	2008
ESI 8	2014
ESI 5-7	2009
ESI 4, RO2-27 TO RO2-18	2009
ESI 4 RO2-23 TO RO2-28	2019
ESI 3	2007
ESI 2	2008
ESI 1 RO1-32 TO RO1-19	2012
ESI 1 RO1-32 TO RO1-01	2008

Frequency

Overflows in the north end are not expected during a 20-year peak flow event (an event that is estimated to occur once every 20 years) through the year 2010. The increase in flows would be directed to the South Treatment Plant via the ESI. Probabilities of overflows to the Sammamish River would increase from one event per every 20 years in 2010 to once per year in 2020 (Figure 2).

Overflows along the ESI would have a higher probability than the King County standard of once every 20 years. Overflows would have approximately a thirty percent chance of occurring in any given year along the ESI or at the Juanita Bay Pump Station into Lake Washington by 2020.

Volumes

As flows in the system increase the volume of potential untreated wastewater overflow increases. Overflow volumes to the Sammamish River in a 20-year peak flow event in 2020 could be approximately 60 MG of untreated wastewater, with an average annual overflow volume of 20 MG.

The following table indicates what the projected volume of overflow could be during a 20-year storm. Figure 3 shows an estimated average annual overflow volume into the Sammamish River.

Table 8. Estimated Overflow Volumes

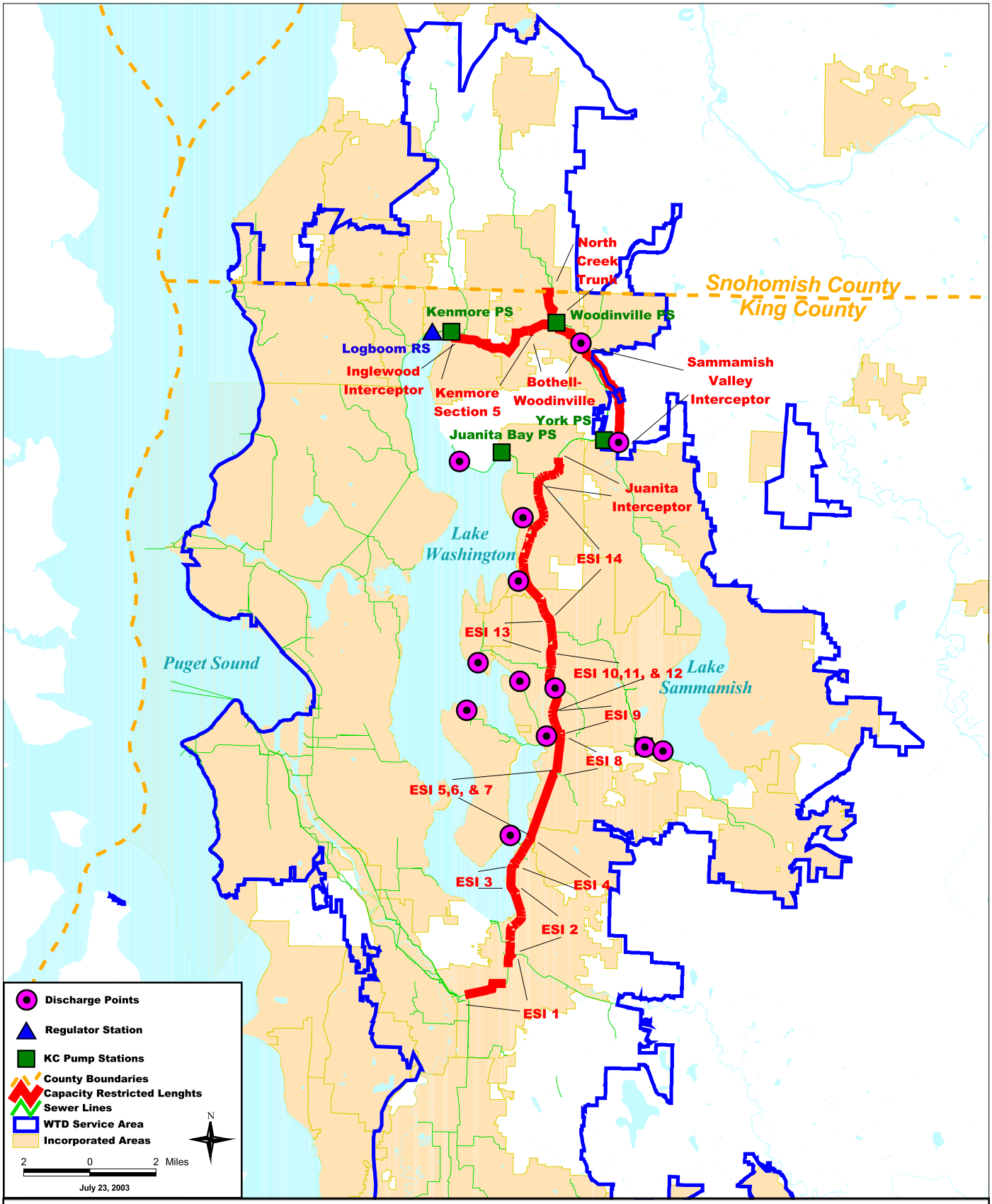
Year	Overflow Volumes (MG)	
	Annual	From 20-year Storm
2010		0
2013		16
2015		28
2020		60

Wastewater Treatment Plants

The South Treatment Plant is estimated to reach its secondary treatment capacity of 115 mgd average wet-weather flow by 2010. If the Brightwater facility is not developed, wastewater from the northern region of the King County Service Area would continue to flow south through the ESI to the South Treatment Plant. Flows above the treatment plant secondary capacity would receive only primary treatment (physical screening and sedimentation of large particles) and bypass secondary treatment (removal of dissolved organic material and fine particles). The flows receiving only primary treatment would be blended with flows receiving secondary treatment and be conveyed through the South Treatment Plant Effluent Transfer System for discharge in Puget Sound 10,000 feet offshore of the Duwamish Head in Seattle, a highly mixed marine environment that is preferred for an emergency controlled overflow. Such a discharge would be out of compliance with the treatment plant's discharge permit requirements and would constitute a managed and controlled overflow. Blended primary and secondary treated wastewater flows in excess of 360 mgd may exceed the capacity of the South Treatment Plant Effluent Pump Station and could result in some effluent being discharged into the Green River in Renton.

The West Point Treatment Plant has the liquid hydraulic capacity, but not the solids handling capacity, to treat additional peak flows. However, the limited conveyance capacity of the Kenmore Lake Line restricts the flow that can be sent from northern King County and southern Snohomish County to the West Point Treatment Plant. Attempts to increase flows to the West Point Treatment Plant would result in the previously described overflows for the Kenmore Interceptor.

As stated, the West Point Treatment Plant does not have the solids handling capacity to treat additional flows. Increasing the solids loading to the plant could result in severely degraded effluent quality discharged into Puget Sound. Due to existing agreements between King County and the City of Seattle, the West Point Treatment Plant cannot be adequately expanded to increase the facility's solids handling capacity. An increase in digestion capacity at the West Point Plant would be necessary.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: dnrp1:\projects\bwfeis\
\project\overflows_bk0619_pipe.apr

Figure 1

Capacity Restricted Lengths and Pump Station Overflow Points

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

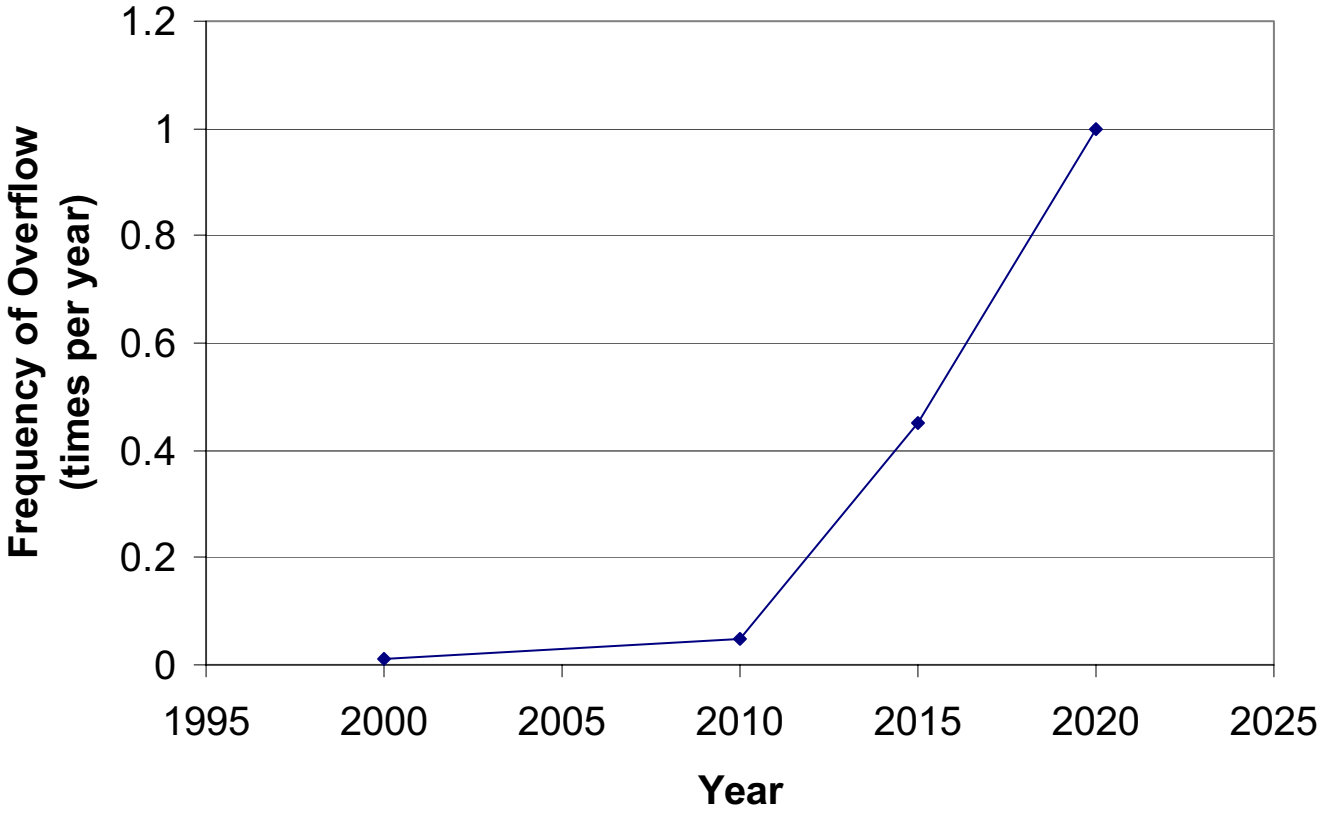


Figure 2

Potential Overflow Frequency to Sammamish River Without Brightwater

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

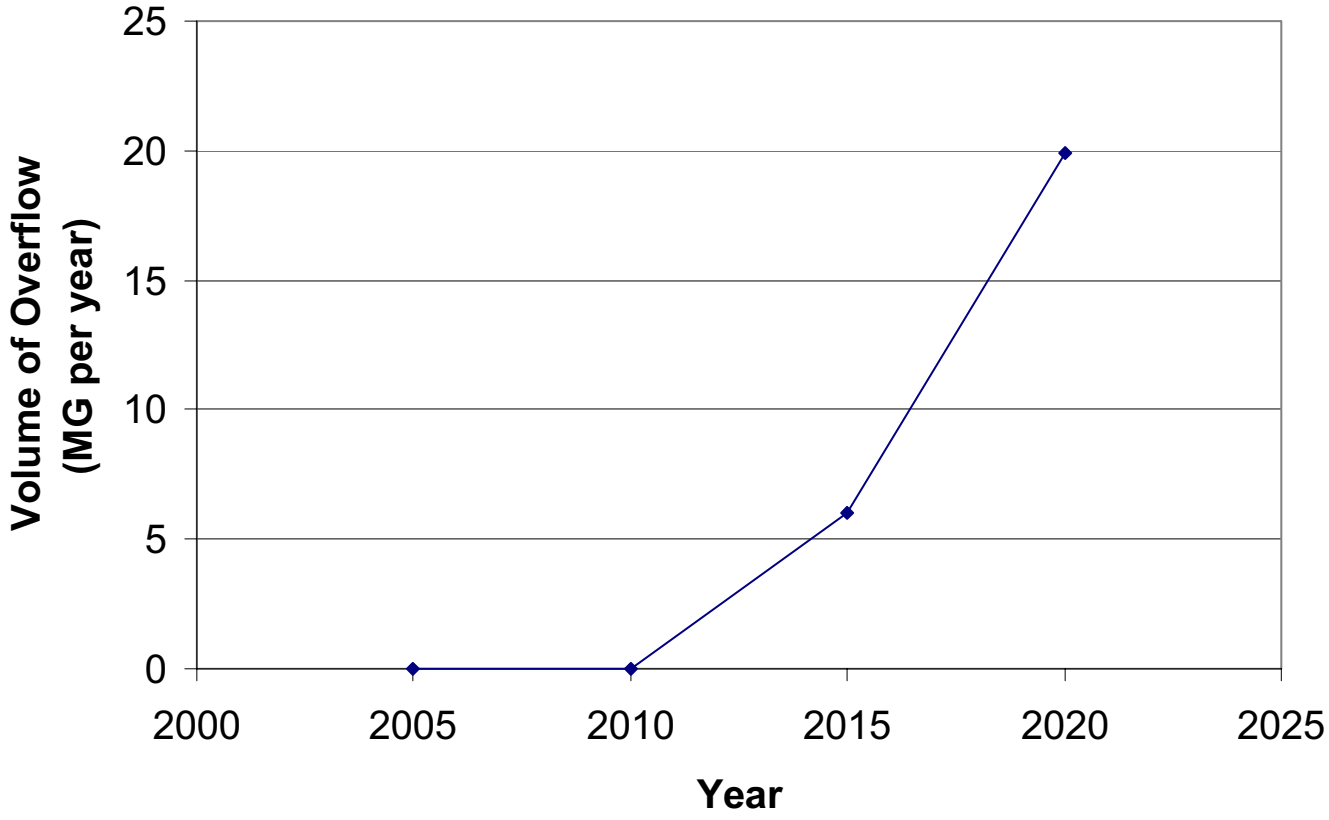


Figure 3

Potential Overflow Volume to Sammamish River Without Brightwater

BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Appendix A

Overflow Data

Appendix A. Overflow Data

Information compiled from King Counties Geographic Information System (GIS) and Criticality database are presented in this appendix. The GIS system contains a map of the system including all its components.

Criticality is the consequence of a sewer failure. It is based on a numerical rating system called "Critical Conveyance System Ranking Module for Microsoft Access". The critical sewers database ranks individual sewer segments on a variety of consequences of failure that are then scored per their range in each field and then summed to determine a total numerical consequence level. Consequences of failure are lumped into four groups based on the type of consequence that it is. These groups are Cost Factors, Surface Impacts, Service Factors and Environmental Considerations. The factors within these groups represent the quantifiable effects a failure of the line segment could represent.

The Criticality database is developed using the data type options listed in Table A.1

Table A.1. Criticality Data Options

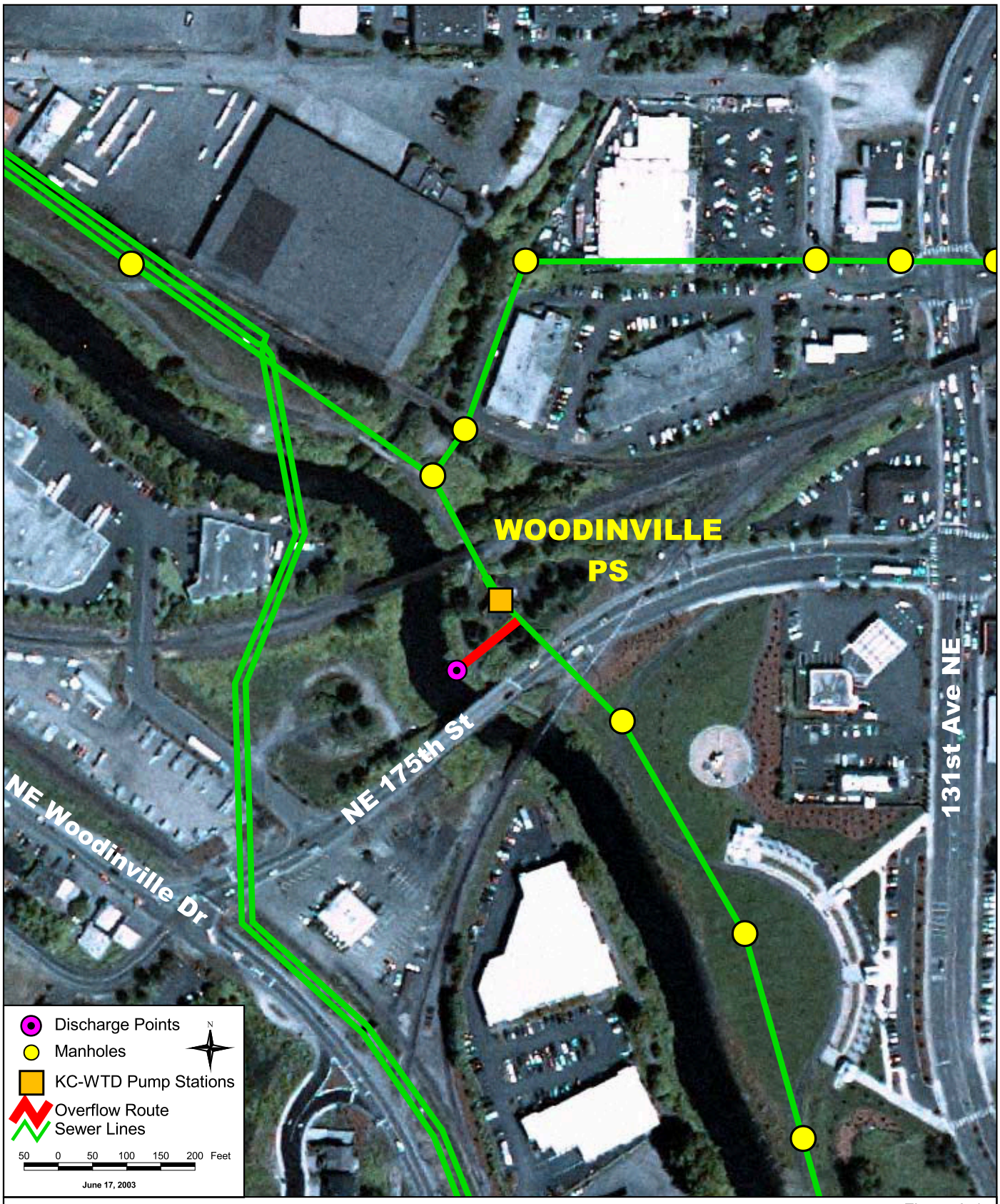
Item	Description
Depth of Burial to Invert (D)	
1	D < 10 ft.
2	10 ft. to 25 ft.
3	25 ft. < D
4	All Tunnels
5	Water table at surface
Groundwater Table (above invert)	
1	No water table
2	0 to 2 ft.
3	2 to 10 ft.
4	10 to 20 ft
5	Pipe buried underwater
Soil conditions (above invert)	
1	Stable, unstable D < 6 t.
2	Unstable & 6 ft. to 15 ft.
4	Unstable & > 15 ft.
Pipe Diameter	
1	Less than 2 ft.
2	2 to 5 ft.
3	More than 5 ft
Waterway	
1	N/A

Item	Description
3	Streams & Rivers (shore cranes)
4	Barge required
5	Dives of more than 30 ft
Location	
1	Undeveloped
2	Residential, Rural areas
3	Paved Surface
4	Structural Impacts
5	Demolition
Traffic	
1	No Road
2	2 lane roads
3	No alternate routes available
4	Blocks access main, state or > 4 lane.
5	Major Structures, freeway and bridges
Location	
1	N/A
3	Residents displaced
4	Shut down business or public areas
5	Disrupt major. structure or critical service.
Access	
1	Open

Item	Description
2	Limited alley, drive within 25 ft.
3	Poor access, drive 25 to 100 ft. away
4	Drive > 100 ft., no easement, road required
5	No road or surface access practical
Redundancy	
1	Parallel system exists
2	Minor flow bypass or flow swap
3	Bypass overland
4	Divert to waterway
5	Re-route not possible
% Hydraulic Capacity (Avg. Peak=Q)	
1	N/A
2	50% to 70%
4	70% < Q
Volume (Million Gallons/Day)	

Item	Description
1	N/A
2	1 to 2 MGD
3	2 to 10 MGD
4	10 to 15 MGD
5	> 15 MGD
Receiving Water Body	
1	N/A
2	Saltwater
3	Lakes
4	Rivers, Ship Canal
5	Stream, Wetland
Sensitive Areas Cleanup	
1	N/A
2	Spills into developed. areas, cleanup req'd
3	Parks, restoration required

Each segment of the system is presented with a graphic figure showing the location of the system components. Two criticality reports are included. The first one is for the segment of pipe most likely to overflow when flows exceed the pipe capacity. The second represents a location where the criticality analysis is the worst.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-1

Pump Station Overflow Point
Woodinville PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility WW*SAMVAL.W11-101 to WW*SAMVAL.W11-101A No. 2

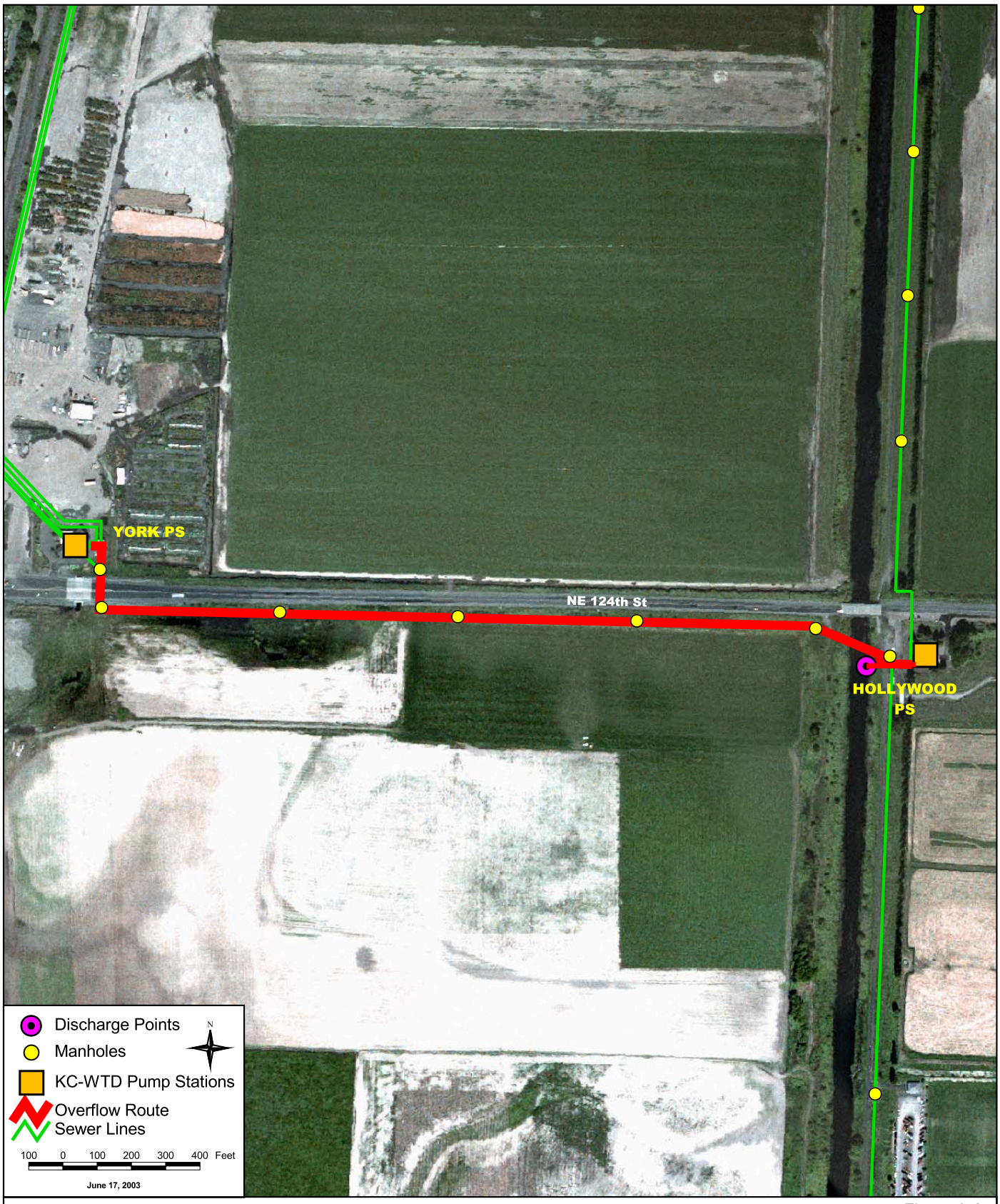
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	70% < Q	4	1	4
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 16

Table refers to Figure A.1 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-2

Pump Station Overflow Point Hollywood & York PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility WE*NLKSAM.R19-09 to WE*NLKSAM.OF No. 1

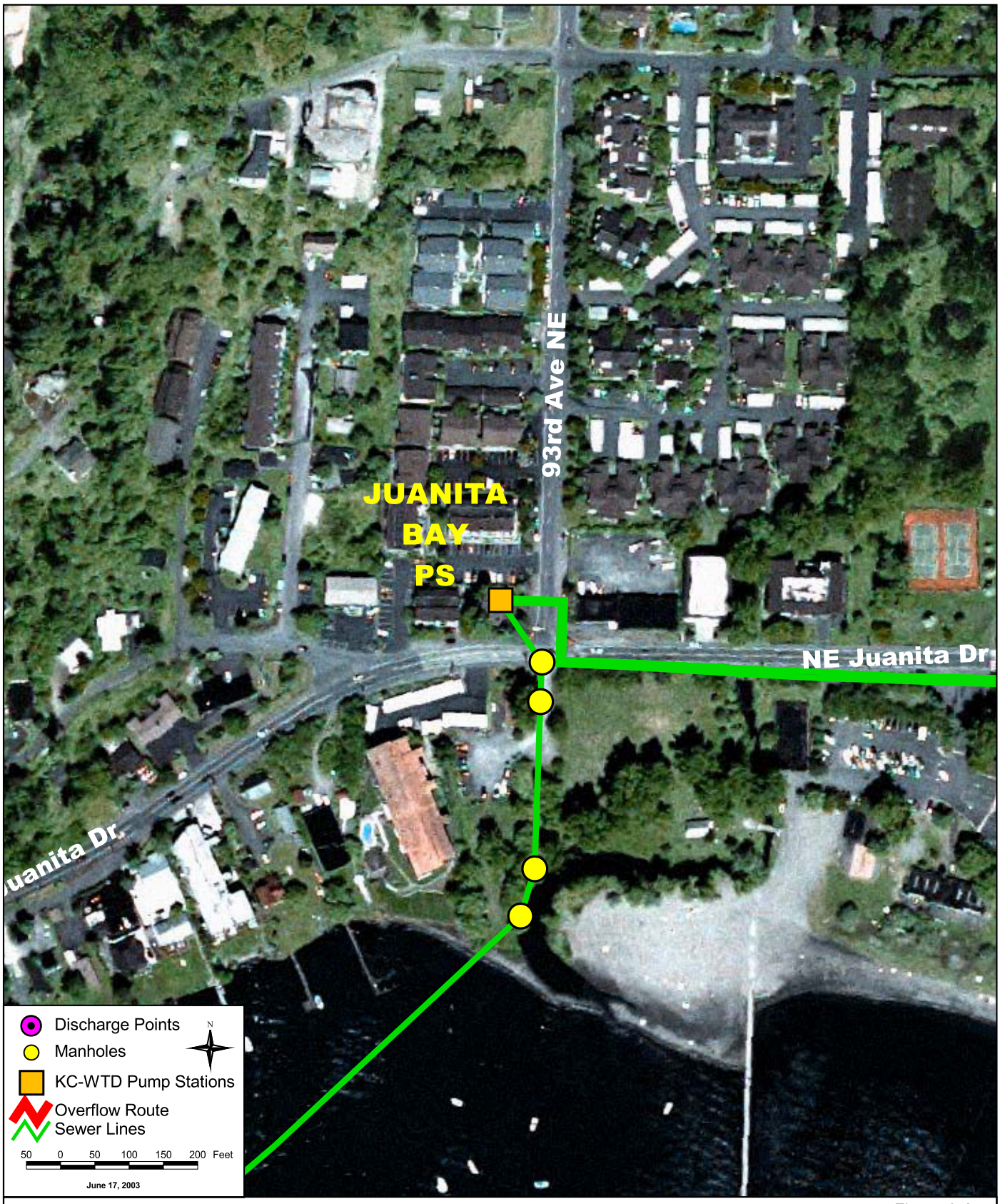
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 12

Table refers to Figure A.2 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

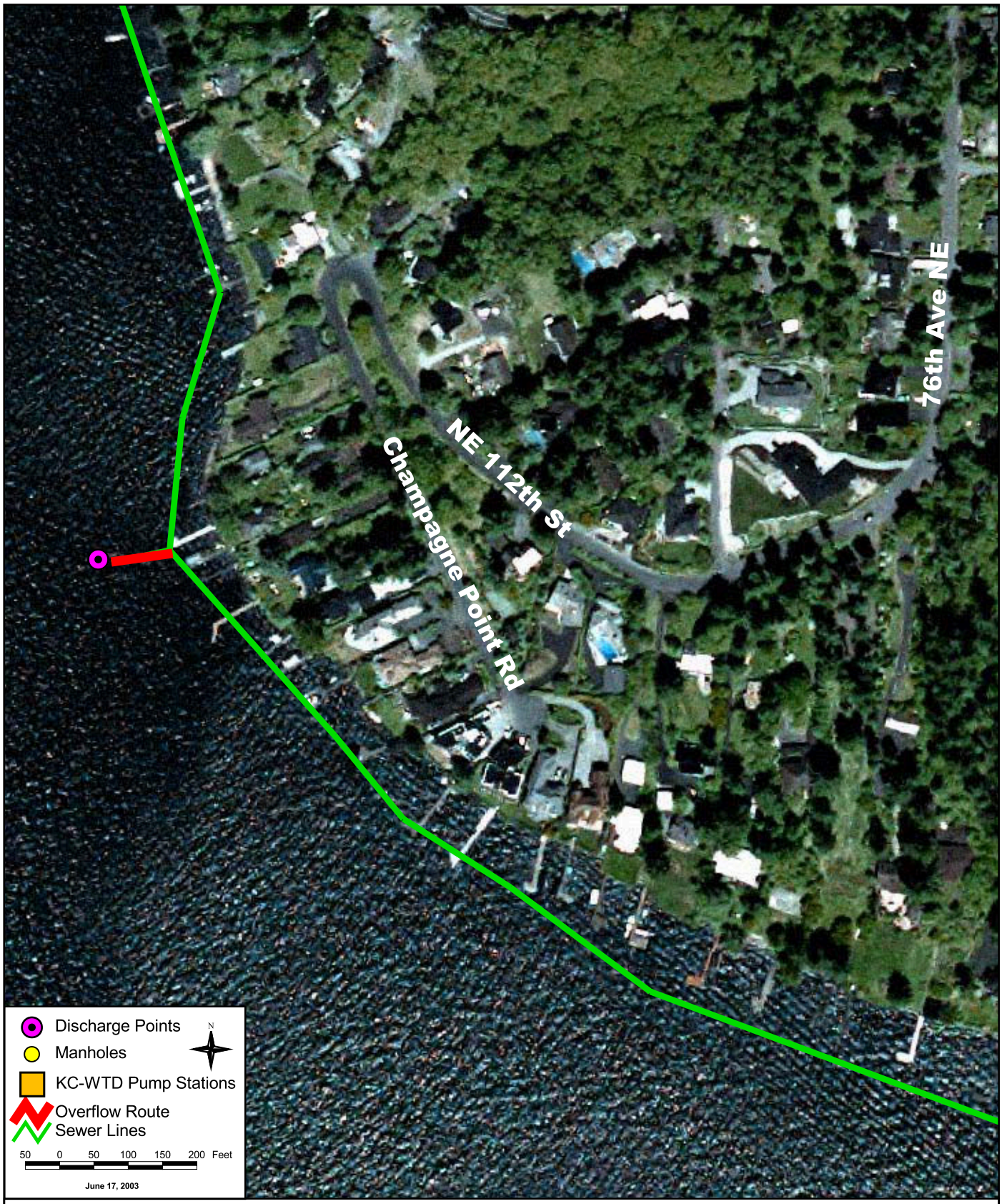
Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-3a

Pump Station Overflow Point
Juanita Bay PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-3b

Pump Station Overflow Point
Juanita Bay/Holmes Point

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*HOLMES.14 to RE*HOLMES.OF No. 1

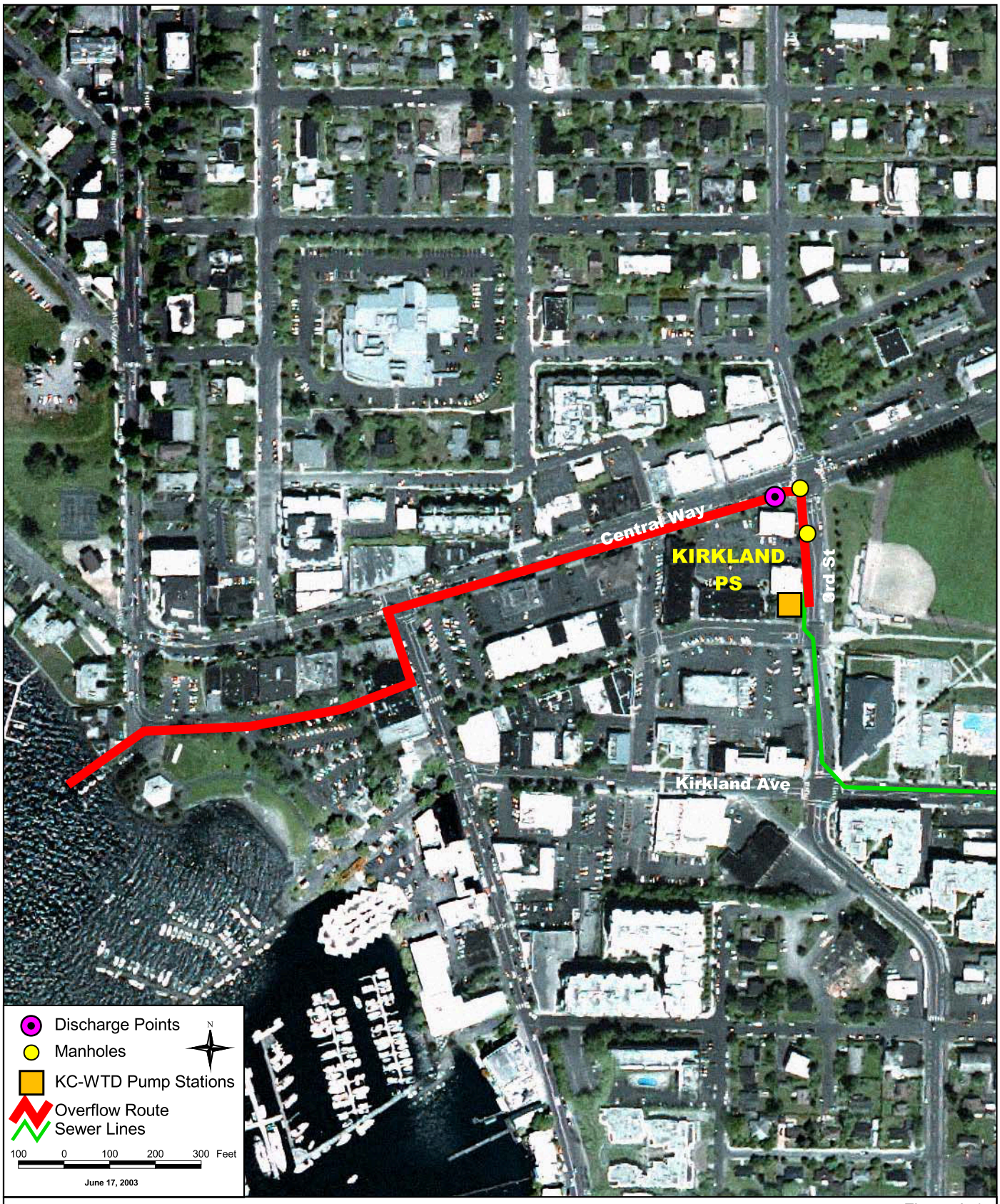
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Barge required	4	1	4
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	No road or surface access pr	8	1	8
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	N/A	0	1	0

Total Score: 34

Table refers to Figures A.3a & A.3b of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

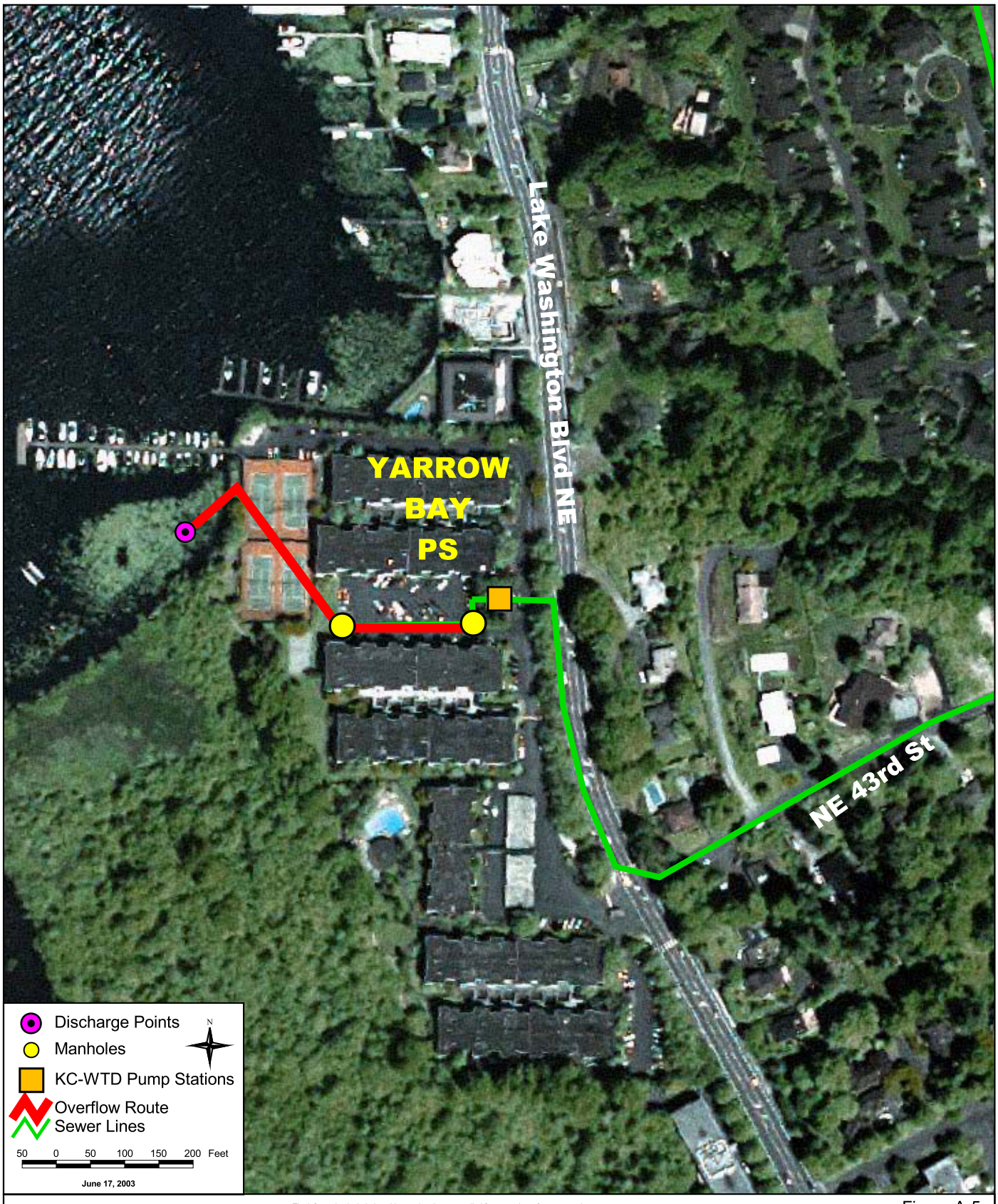
File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-4

Pump Station Overflow Point
Kirkland PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Kirkland PS overflow discharges though locally owned storm sewer system. No criticality information is available.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-5

Pump Station Overflow Point
Yarrow Bay PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*YARROWBAY.OF-03 to RE*YARROWBAYOF.OF No. 1

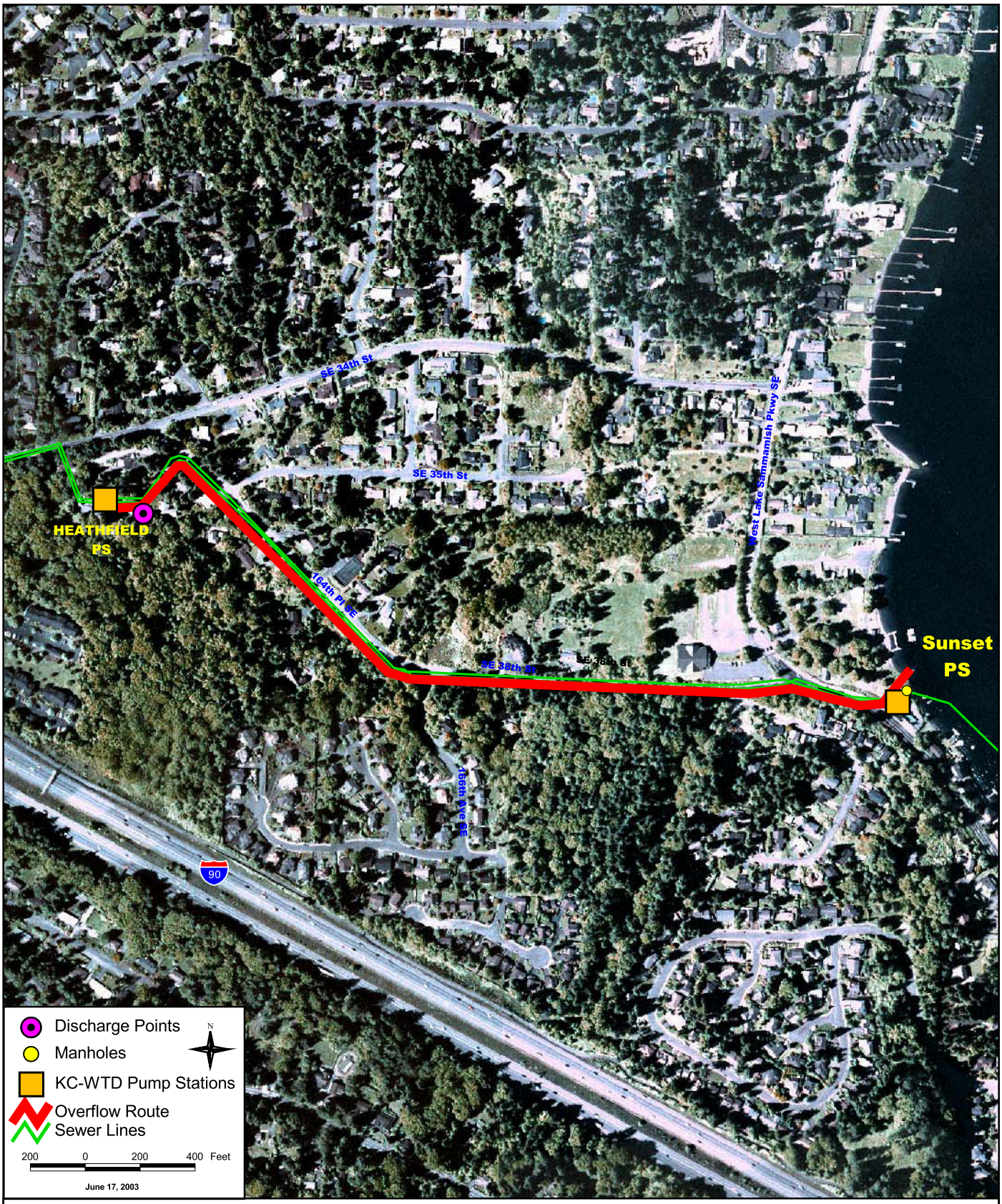
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	Less than 2 ft.	0	1	0
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	N/A	0	1	0
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 9

Table refers to Figure A.5 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

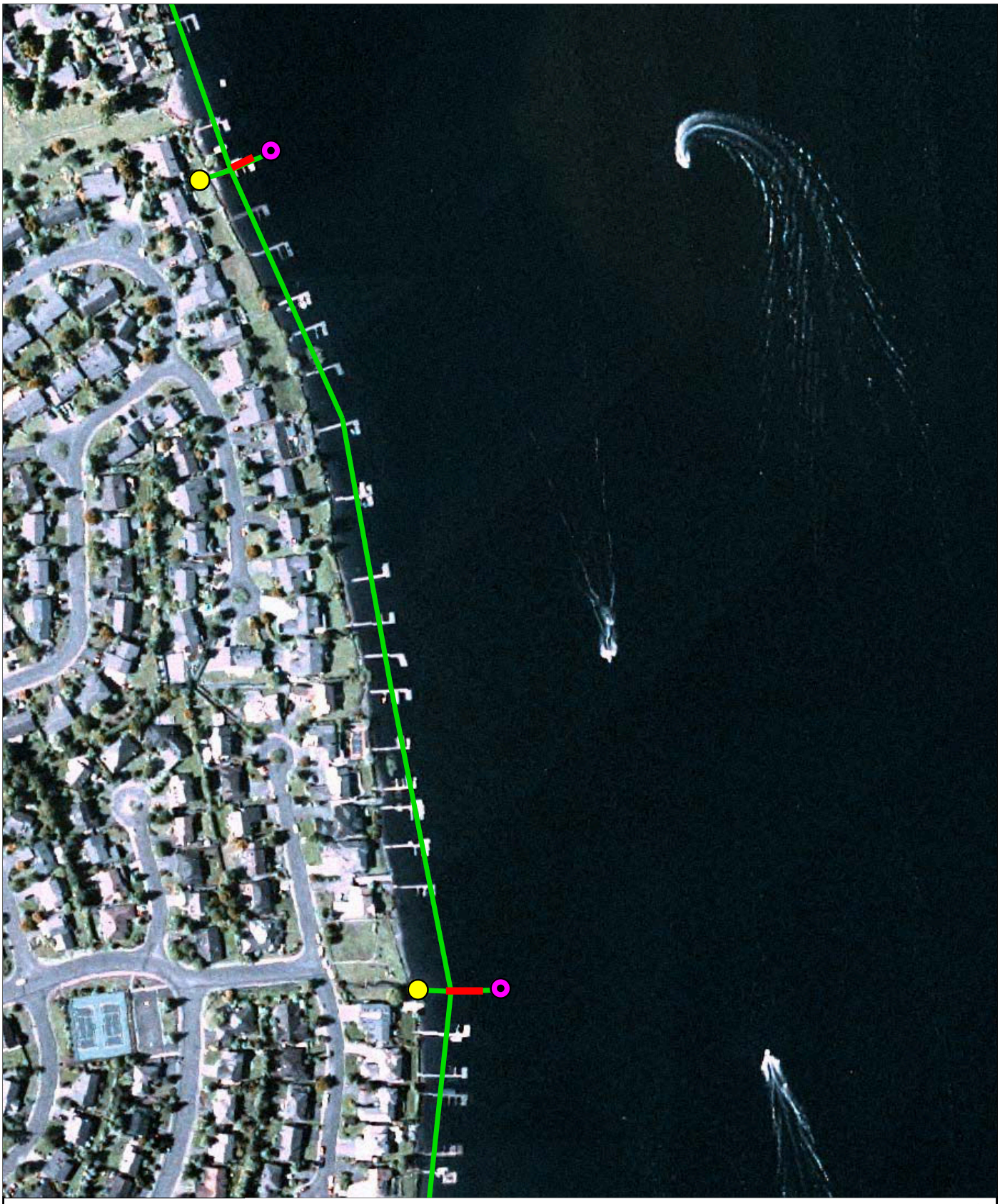
File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-6a

Pump Station Overflow Point Sunset & Heathfield PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Heathfield PS overflow discharges though locally owned storm sewer system. No criticality information is available.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-6b

Pump Station Overflow Point
Sunset PS

BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility RE*ISSAQ1.R17-20 to RE*ISSAQ1.OF-01 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	Water table at surface	8	1	8
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Barge required	4	1	4
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	No road or surface access pr	8	1	8
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	N/A	0	1	0

Total Score: 38

Facility RE*ISSAQ1.R17-23 to RE*ISSAQ1.OF-02 No. 1

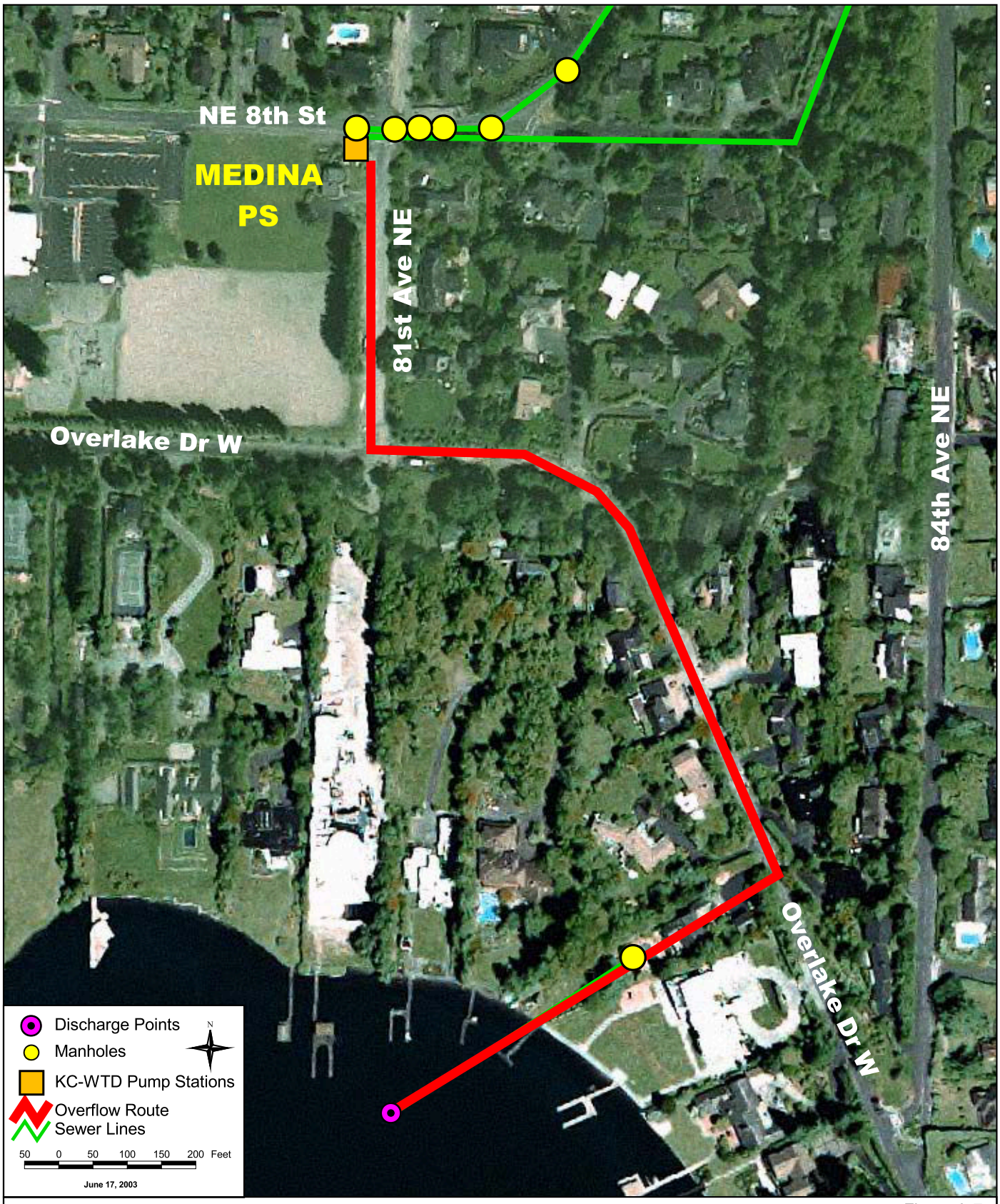
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	Water table at surface	8	1	8
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Barge required	4	1	4
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	No road or surface access pr	8	1	8
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	N/A	0	1	0

Total Score: 38

Table refers to Figure A.6b of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-7

Pump Station Overflow Point
Medina PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*MEDINA.D-50 to RE*MEDINAOF.OF No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	Less than 2 ft.	0	1	0
Cost Factors	Waterway	Barge required	4	1	4
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Drive > 100 ft., no easment, r	4	1	4
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 29

Table refers to Figure A.7 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.

King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-8

Pump Station Overflow Point
Wilburton PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*FACTOR.RO6-01 to RE*FACTOR.RO6-00 No. 1

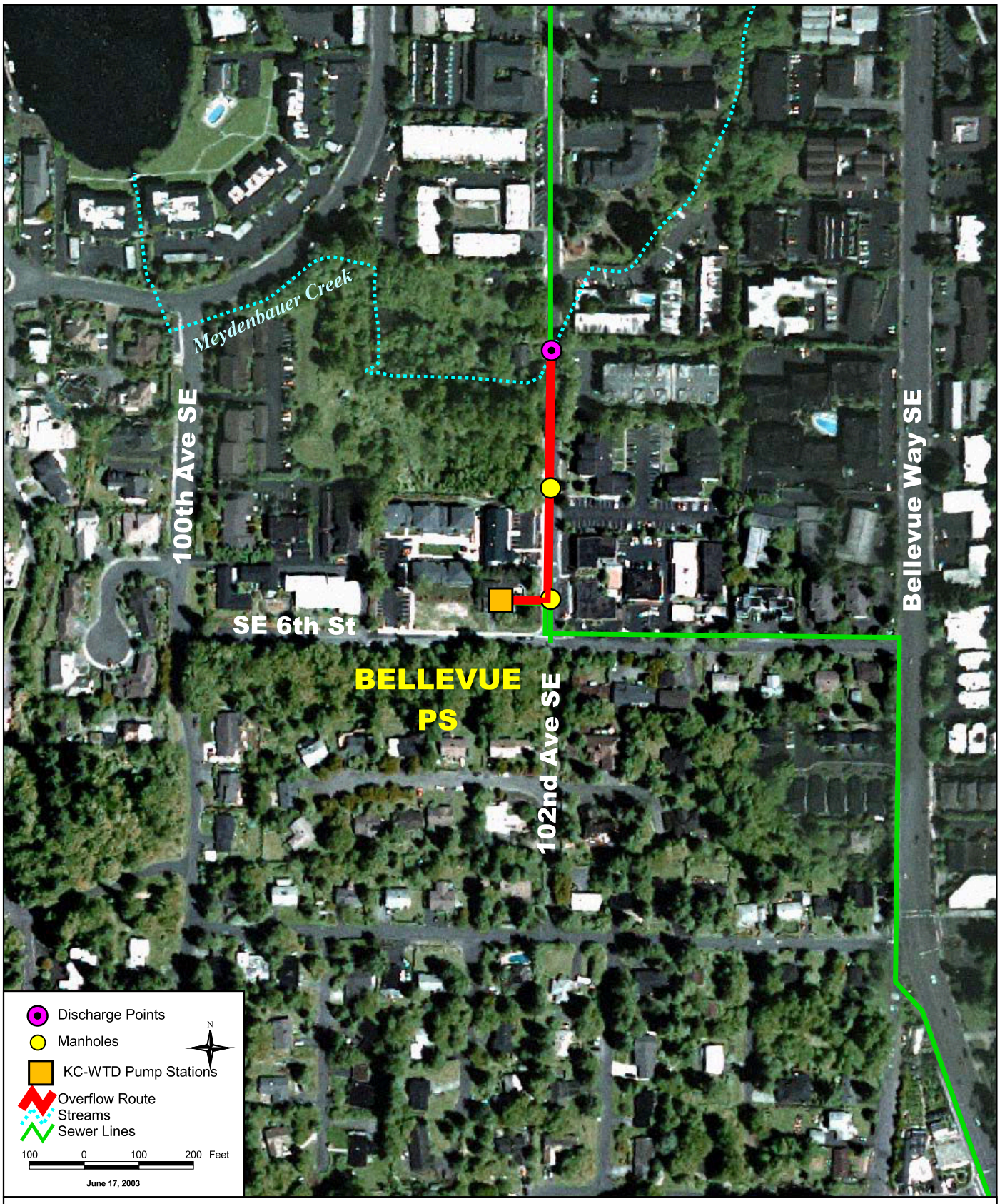
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 20

Table refers to Figure A.8 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

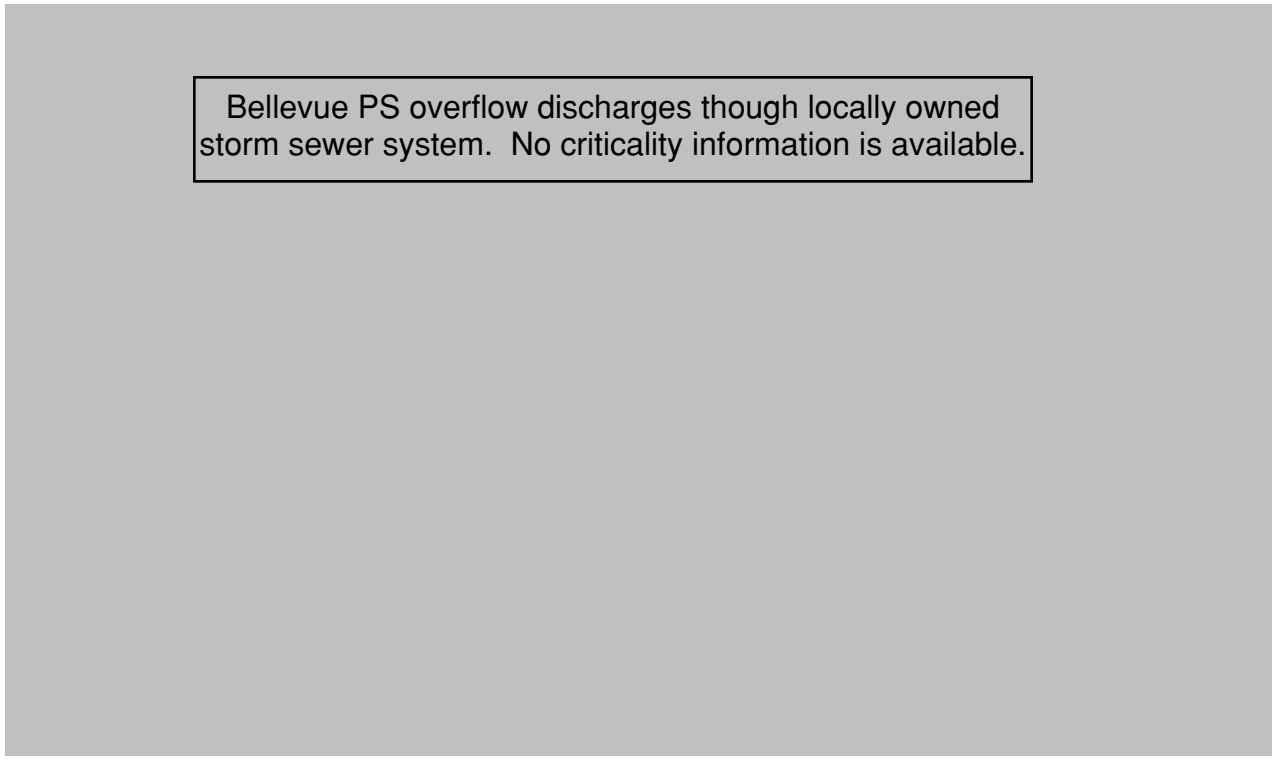
Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

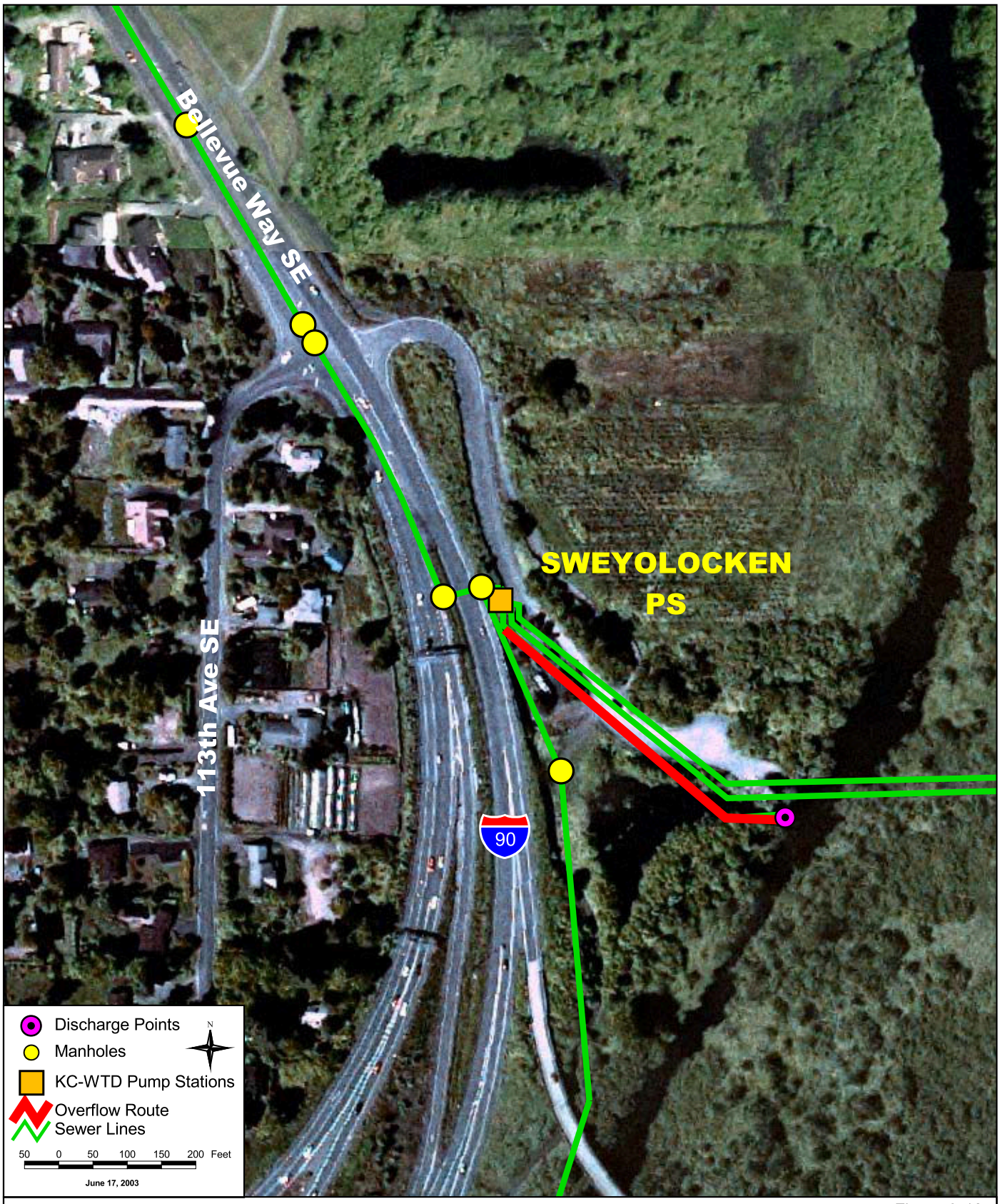
File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-9

Pump Station Overflow Point
Bellevue PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM


Bellevue PS overflow discharges though locally owned storm sewer system. No criticality information is available.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-10

Pump Station Overflow Point
Sweyolocken PS

BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility RE*SWEYOLOC.RO9-01 to Ξ*SWEYOLOC.MERCERS No. 1

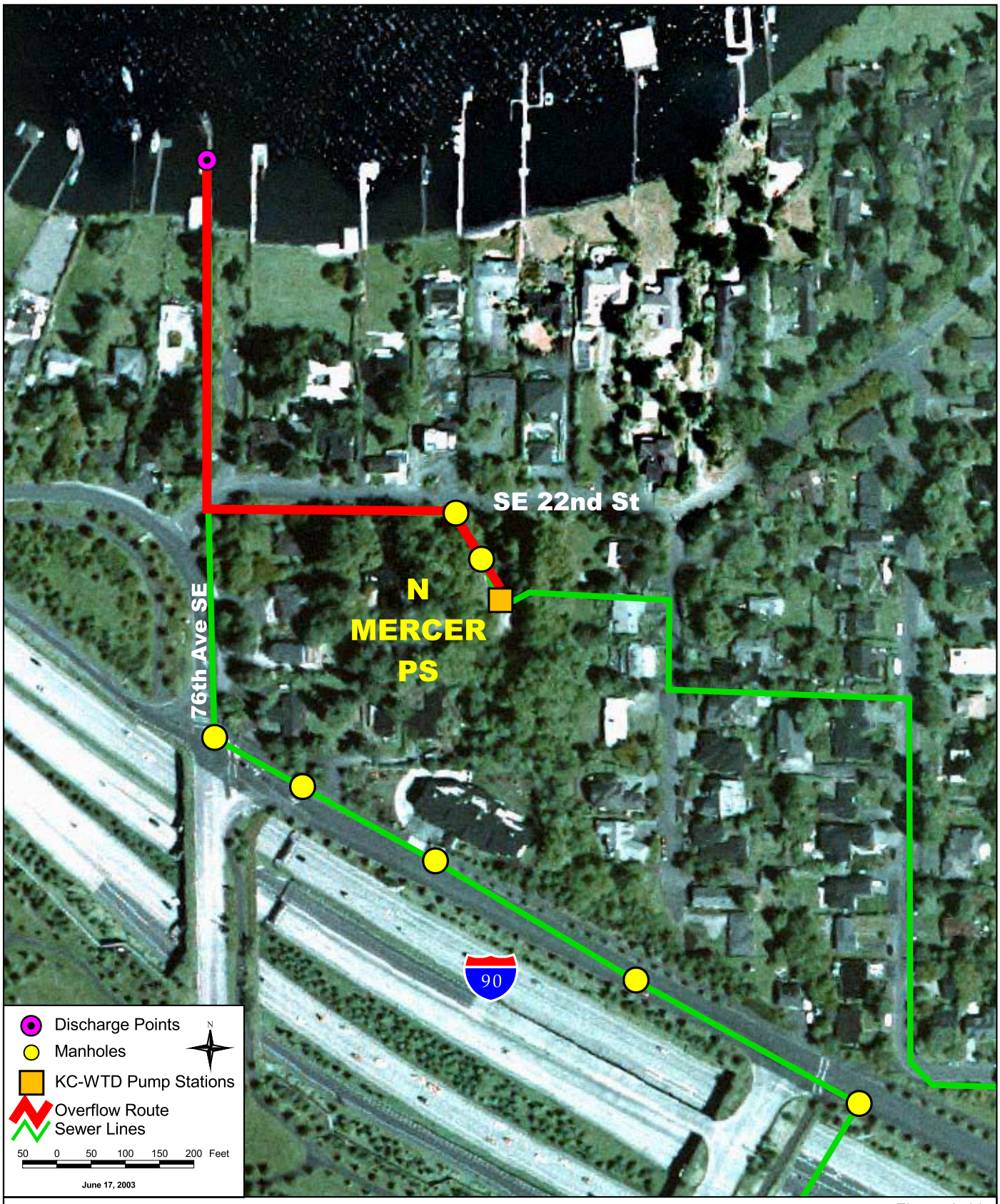
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 22

Table refers to Figure A.10 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-11

Pump Station Overflow Point
N Mercer PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*NMER.RO8G-31 to RE*NMER.RO8G-30 No. 1

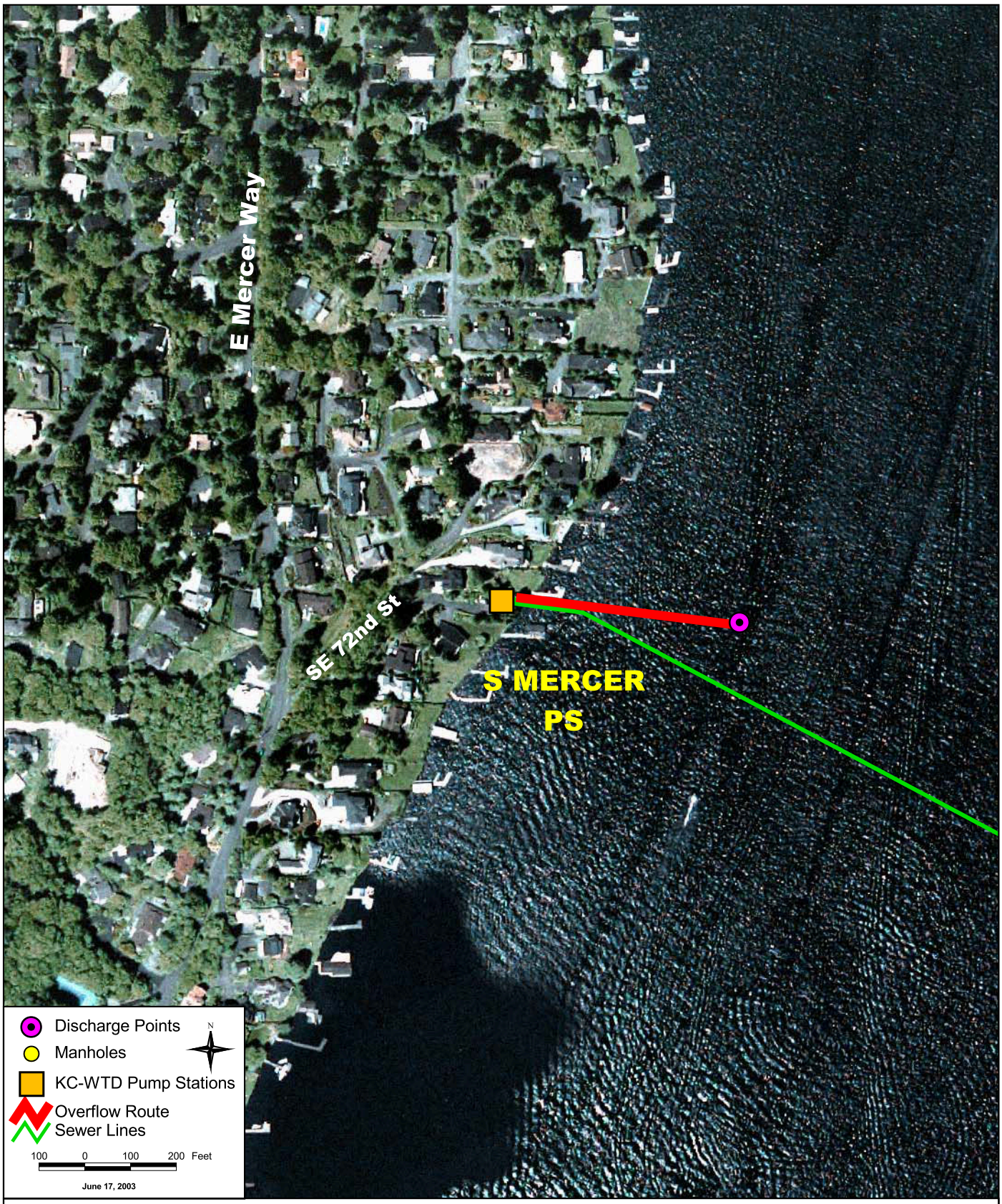
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 12

Table refers to Figure A.11 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_ps_points.apr

Figure A-12

Pump Station Overflow Point
S Mercer PS

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*SMERCER.SMERCER to RE*SMERCER.SMERCEROF No. 1

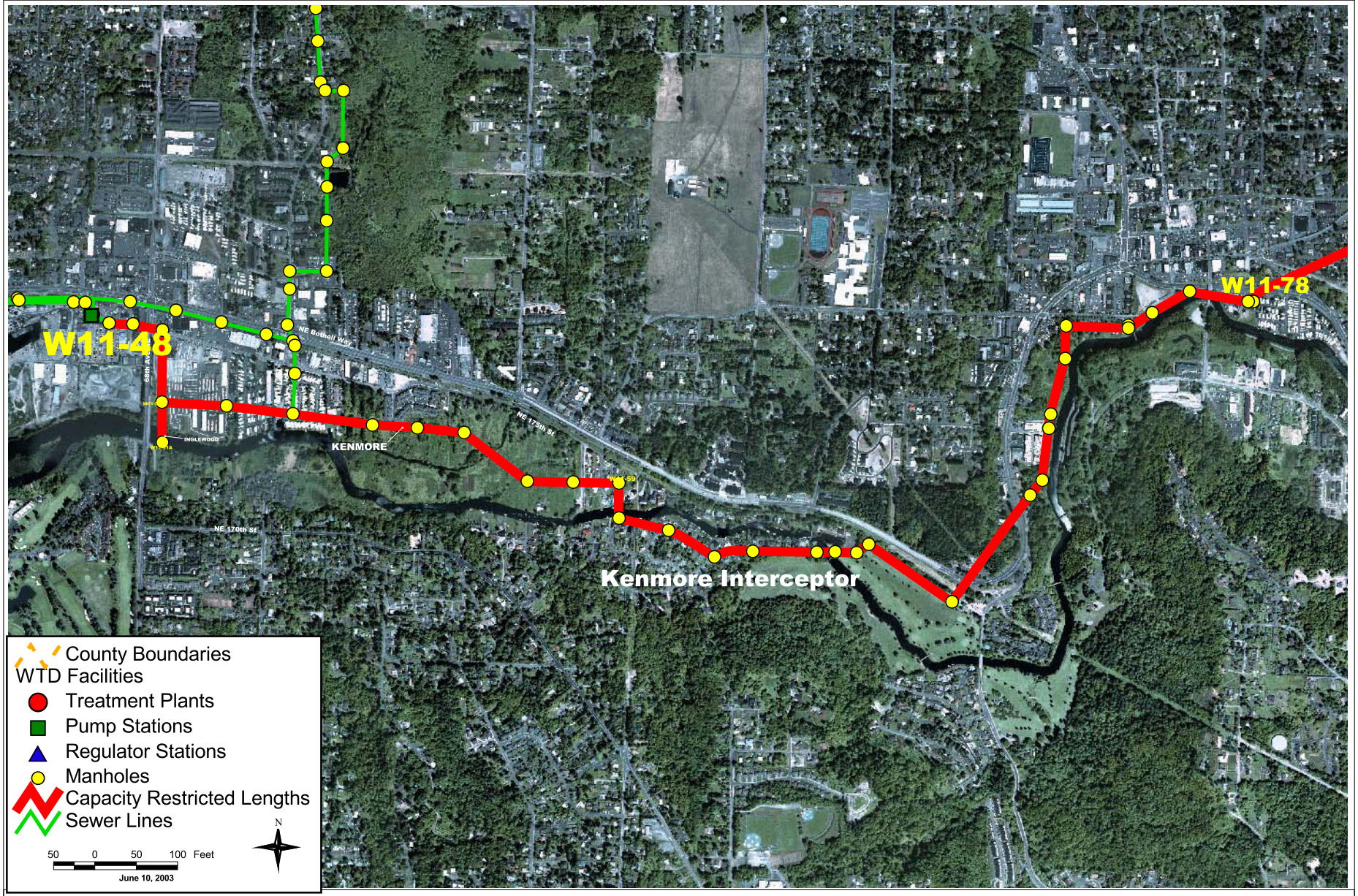
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	Water table at surface	8	1	8
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	Less than 2 ft.	0	1	0
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Limited alley, drive within 25 f	1	1	1
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	N/A	0	1	0
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	N/A	0	1	0

Total Score: 18

Table refers to Figure A.12 of Brightwater No Action Alternative
The criticality data presented represents the location of an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-13
Capacity Restricted
King County Interceptor
Kenmore Int: W11-48 to W11-78
BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility WW*KENMR.W11-51 to WW*KENMR.W11-50 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 22

Facility WW*KENMR.W11-70 to WW*KENMR.W11-69 No. 1

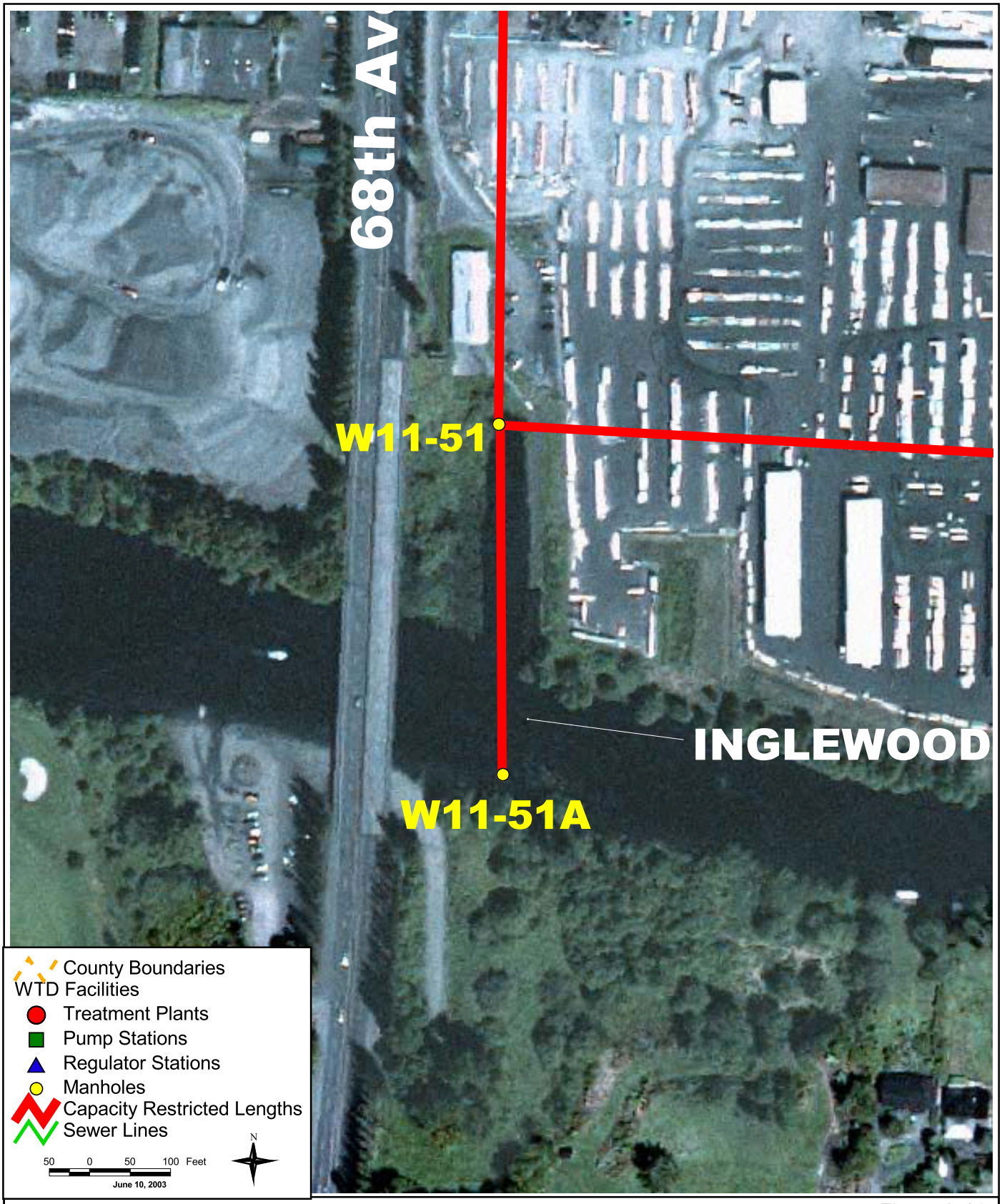
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	Streams & Rivers (shore cran	2	1	2
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Re-route not possible	8	1	8
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 35

Table refers to Figure A.13 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

File Name: Q:\WTD\Projects\BW_FEIS\projects\overflows_pipelines.apr

Figure A-14
Capacity Restricted
King County Interceptor
Inglewood Int: W11-51At to W11-51
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility WW*INGLWD.W11-51A to WW*KENMR.W11-51 No. 1

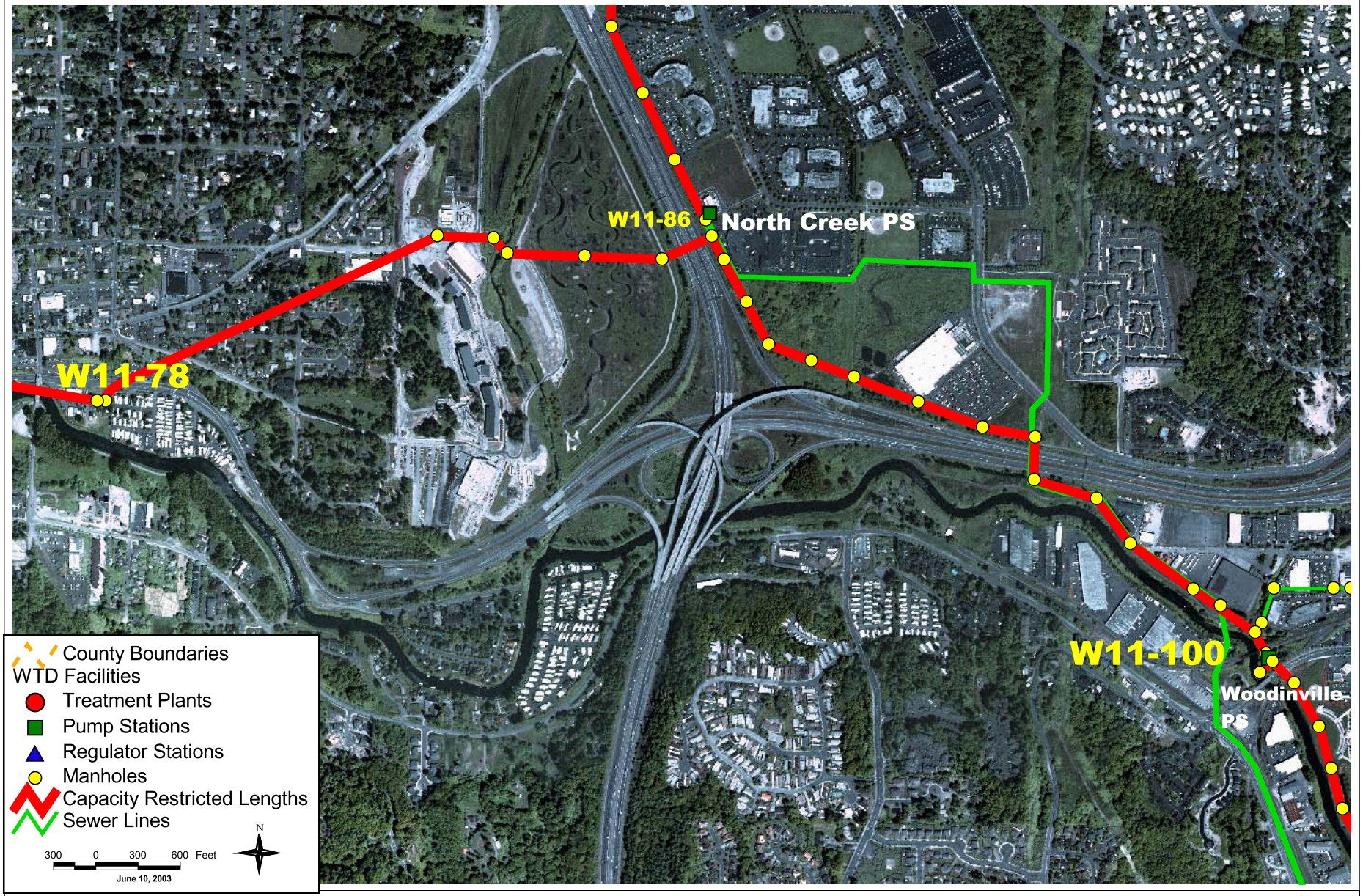
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	Water table at surface	8	1	8
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Streams & Rivers (shore cran	2	1	2
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	2 to 10 MGD	2	1	2
Environmental Consideration	Receiving Water Body	Rivers, Ship Canal	4	1	4
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 32

Table refers to Figure A.14 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-15
Capacity Restricted
King County Interceptor
Bothell-Woodinville Int: W11-78 to W11-100
BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility WW*BOTHWOOD.W11-86 to WW*BOTHWOOD.W11-85 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	Major Structures, freeway an	8	1	8
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Parallel system exists	0	1	0
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 32

Facility WW*BOTHWOOD.W11-90 to WW*BOTHWOOD.W11-89 No. 1

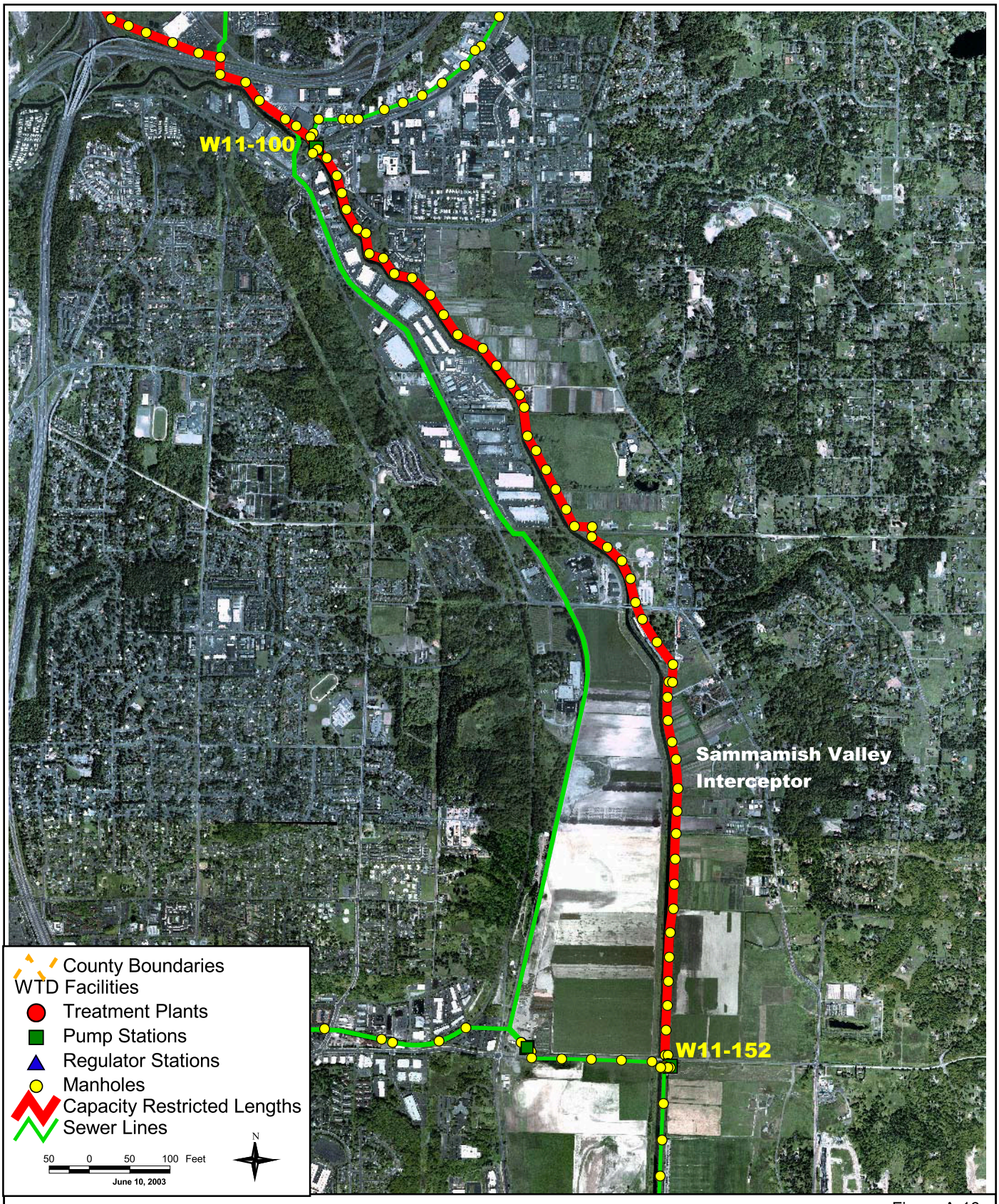
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 14

Table refers to Figure A.15 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-16
Capacity Restricted
King County Interceptor
Samm Valley Int:W11-99 to W11-152
BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility WW*SAMVAL.W11-127 to WW*SAMVAL.W11-126 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Structural Impacts	4	1	4
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	70% < Q	4	1	4
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 28

Facility WW*SAMVAL.W11-134 to WW*SAMVAL.W11-133 No. 1

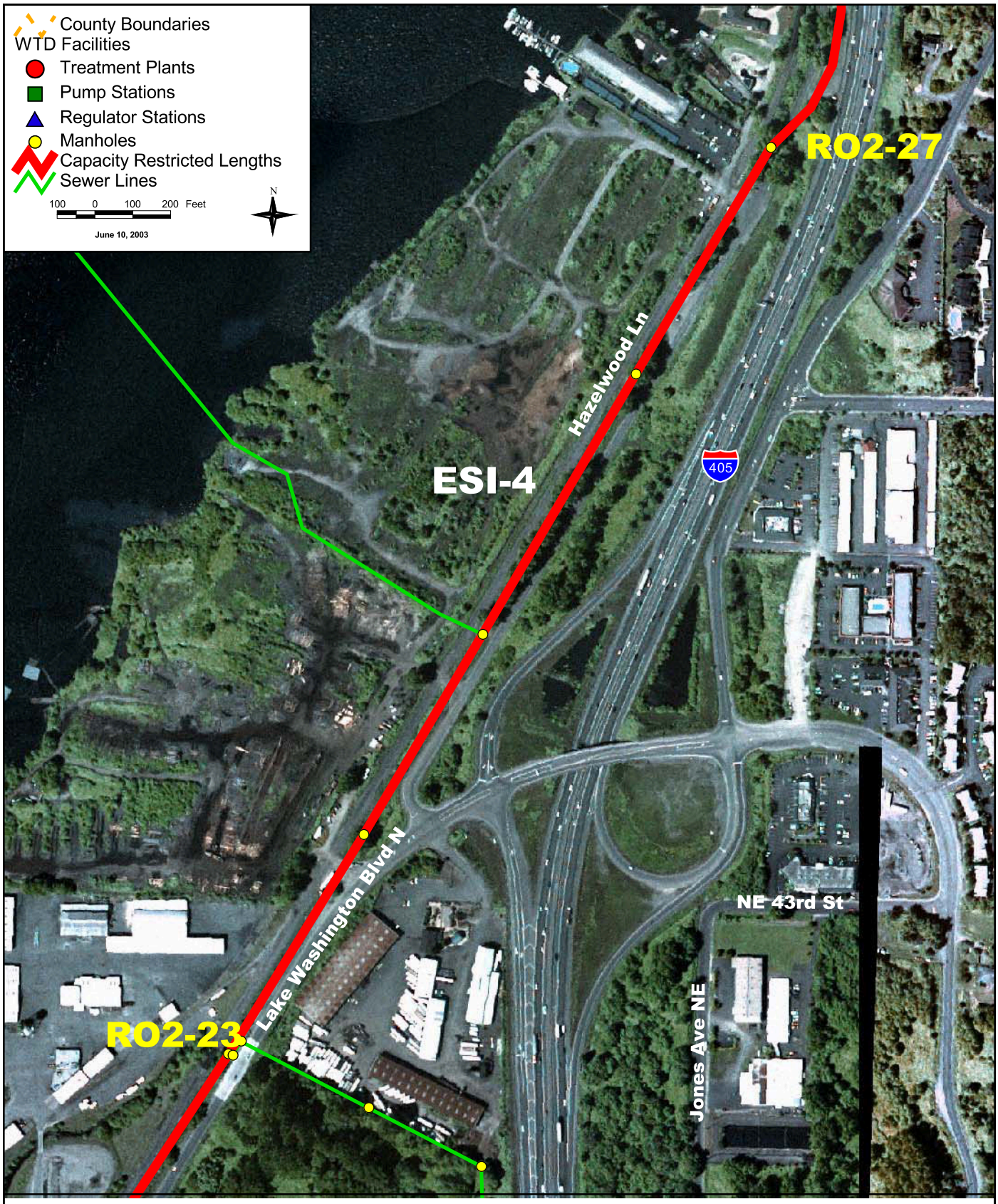
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	70% < Q	4	1	4
Service Factors	Volume (Million Gallons/Day)	10 to 15 MGD	4	1	4
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 18

Table refers to Figure A.16 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17a
Capacity Restricted
King County Interceptor
ESI-4: RO2-23 to RO2-27
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI4.RO2-24 to RE*ESI4.RO2-23 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 26

Facility RE*ESI4.RO2-26 to RE*ESI4.RO2-25 No. 1

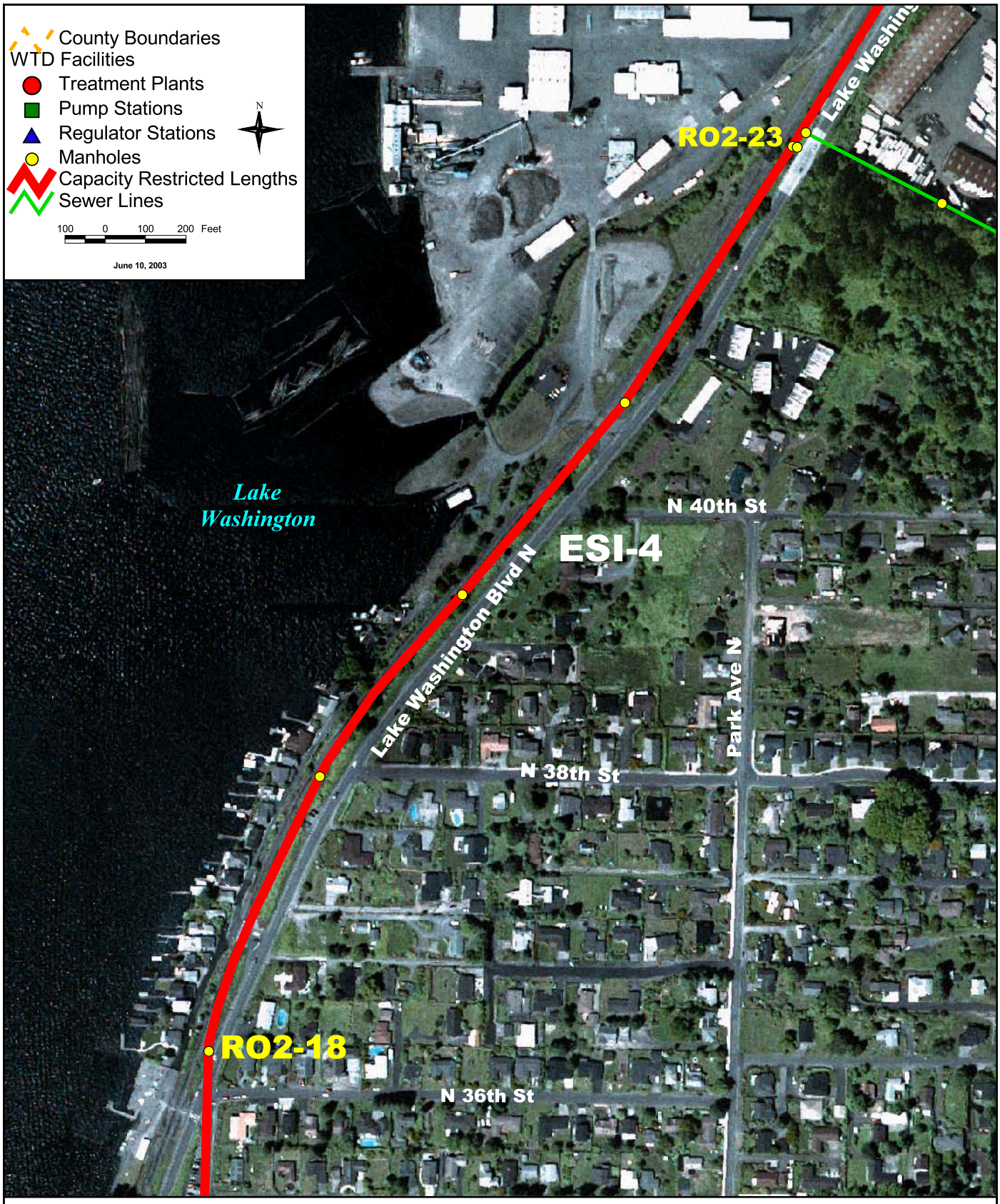
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	No water table	0	1	0
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 13

Table refers to Figure A.17a of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17b
Capacity Restricted King County Interceptor ESI-4: RO2-18 to RO2-23
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI4.RO2-20 to RE*ESI4.RO2-19 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 21

Facility RE*ESI4.RO2-19 to RE*ESI3.RO2-18 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 21

Table refers to Figure A.17b of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.

King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17c
Capacity Restricted
King County Interceptor
ESI-3: RO2-17 to RO2-18
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI3.RO2-18 to RE*ESI2.RO2-17 No. 1

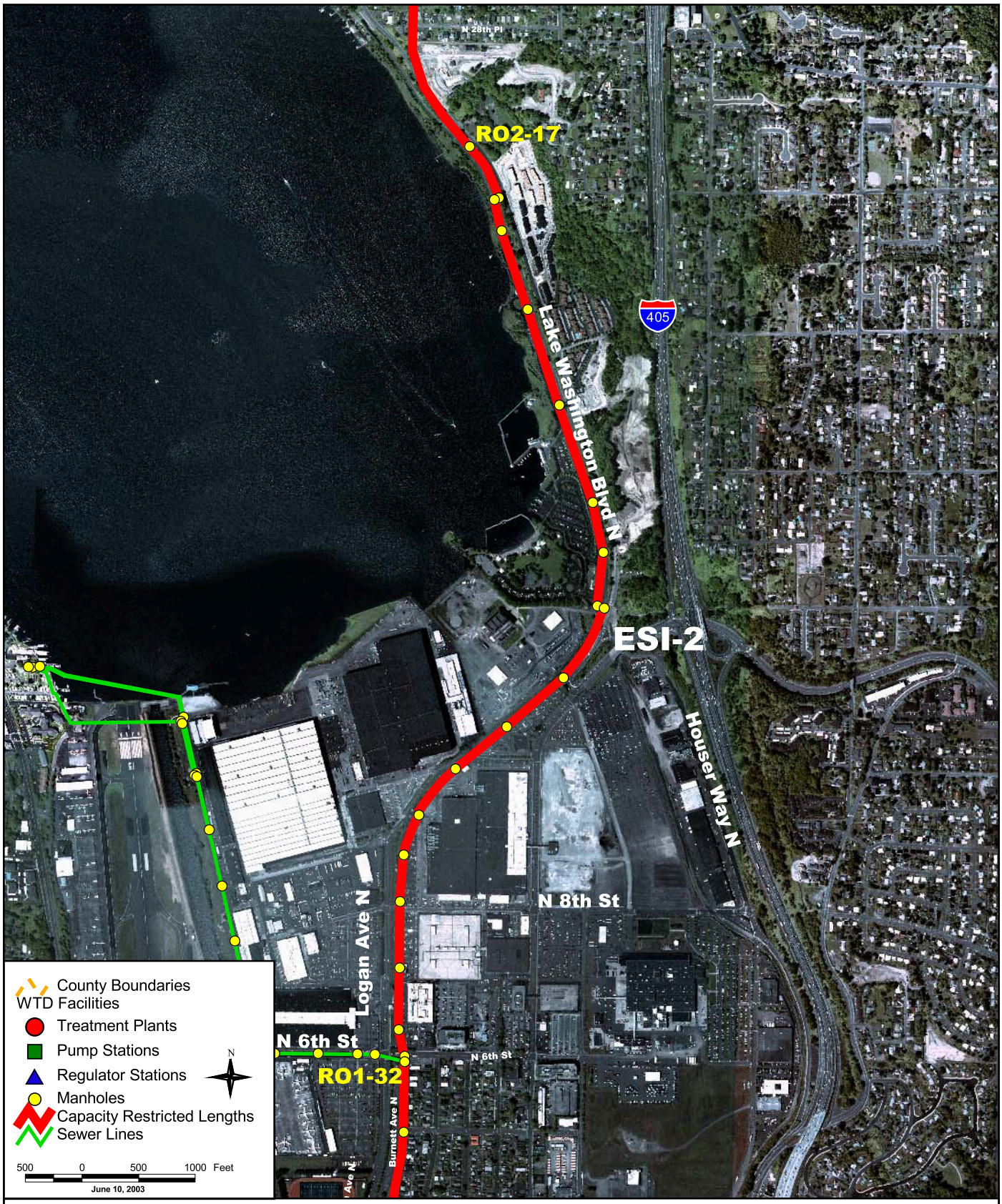
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	All Tunnels	4	1	4
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Lakes	2	1	2
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 30

Table refers to Figure A.17c of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17d
Capacity Restricted
King County Interceptor
ESI-2: RO1-32 to RO2-17
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI2.RO2-02 to RE*ESI2.RO2-01 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 23

Facility RE*ESI2.RO2-01 to RE*ESI1.RO1-32 No. 1

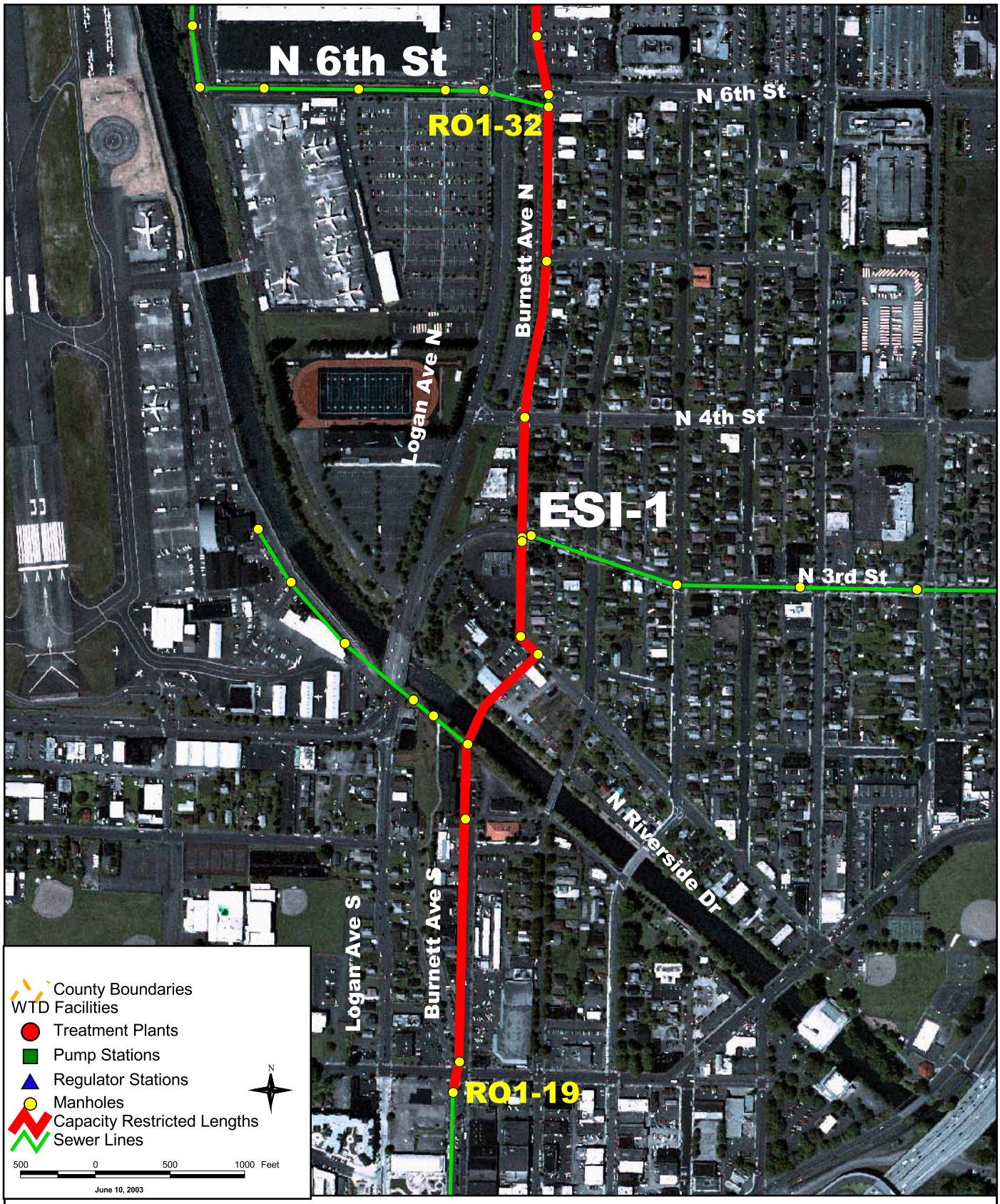
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 23

Table refers to Figure A.17d of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17e
Capacity Restricted
King County Interceptor
ESI-1: RO1-32 to RO1-19
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI1.RO1-23 to RE*ESI1.RO1-22 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Rivers, Ship Canal	4	1	4
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 35

Facility RE*ESI1.RO1-25 to RE*ESI1.RO1-24 No. 1

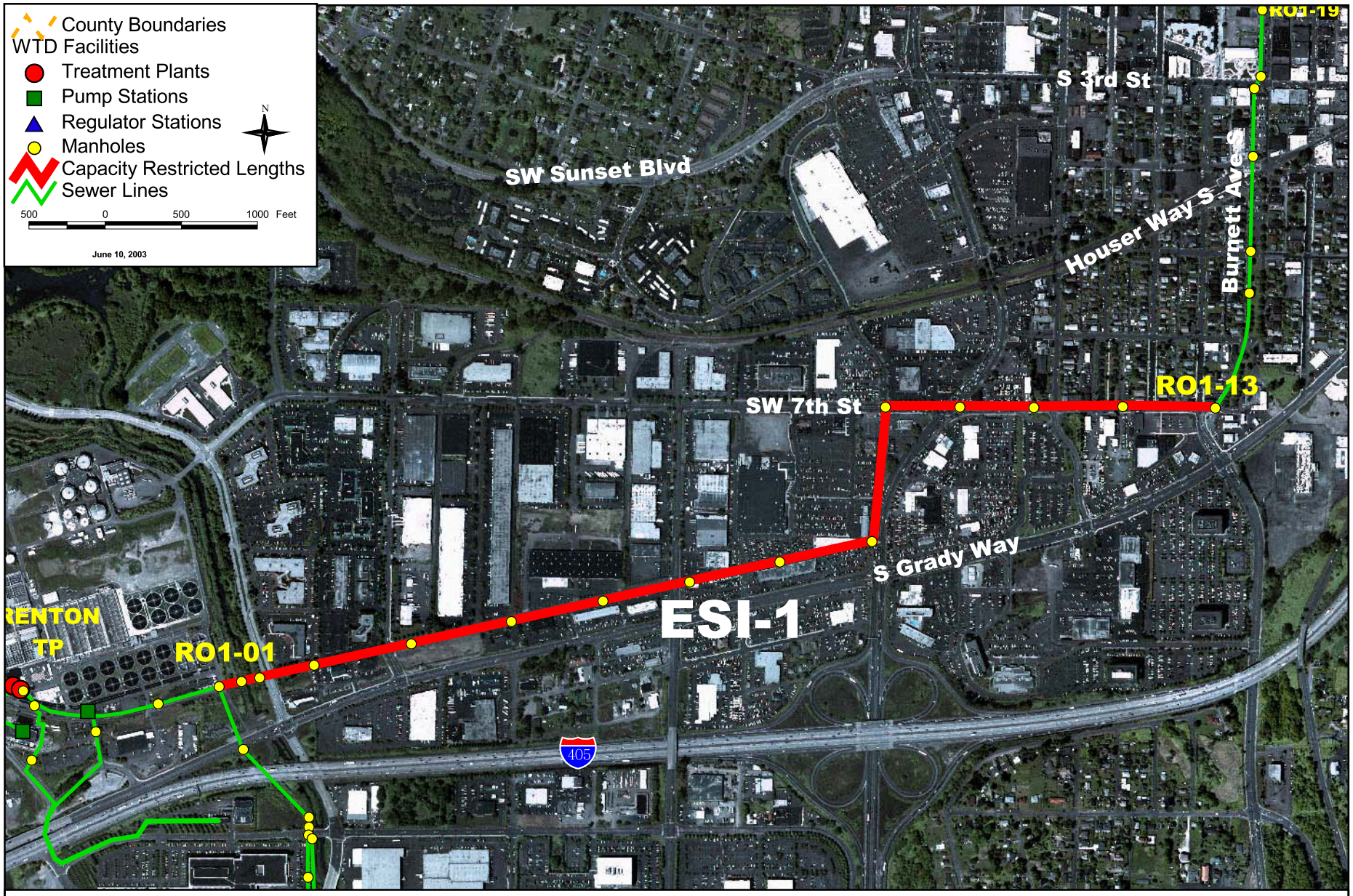
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 26

Table refers to Figure A.17e of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-17f
Capacity Restricted
King County Interceptor
ESI-1: RO1-01 to RO1-13
BRIGHTWATER REGIONAL
WASTEWATER TREATMENT SYSTEM

Facility RE*ESI1.RO1-02 to RE*ESI1.RO1-01 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 26

Facility RE*ESI1.RO1-09 to RE*ESI1.RO1-08 No. 1

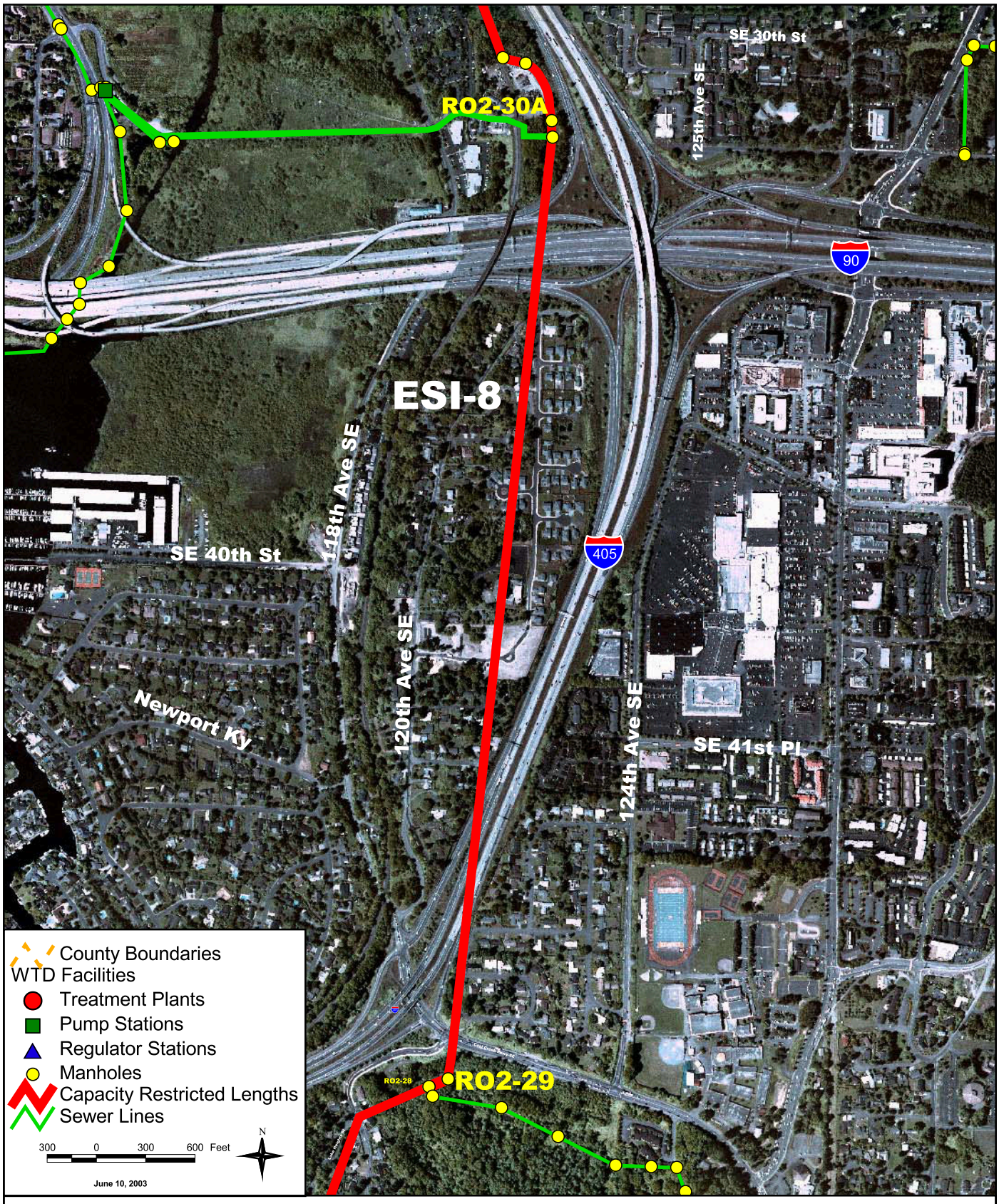
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & > 15 ft.	4	1	4
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 34

Table refers to Figure A.17f of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-18a
Capacity Restricted
King County Interceptor
ESI-8: RO2-29 to RO2-30A
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI8.RO2-30 to RE*ESI5-7.RO2-29 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	All Tunnels	4	1	4
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Structural Impacts	4	1	4
Surface Impacts	Traffic	Major Structures, freeway an	8	1	8
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	No road or surface access pr	8	1	8
Service Factors	Redundancy	Re-route not possible	8	1	8
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 55

Facility RE*ESI9.RO2-30A to RE*ESI8.RO2-30 No. 1

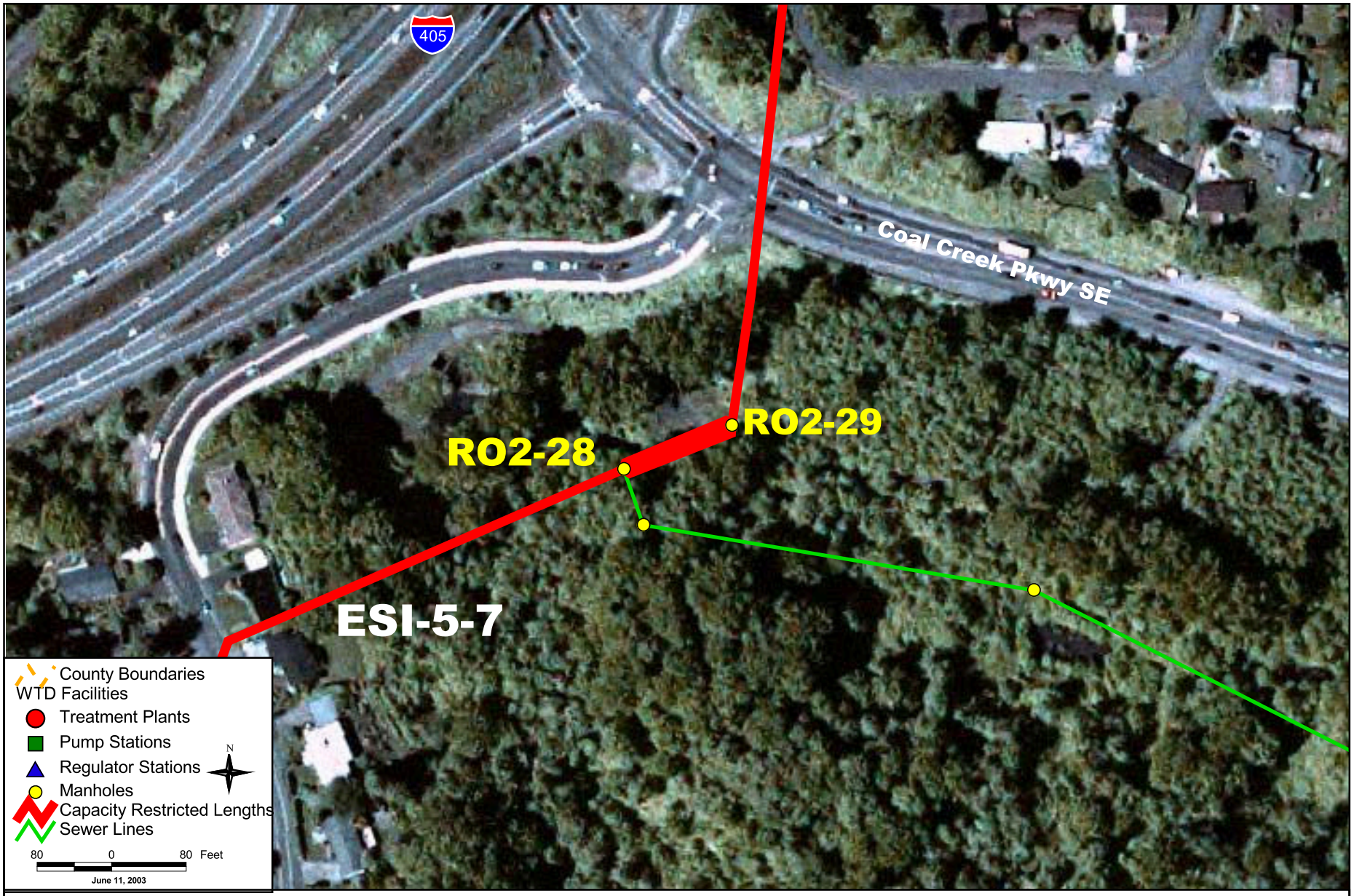
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 16

Table refers to Figure A.18a of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment
Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-18b
Capacity Restricted
King County Interceptor
ESI-5,7: RO2-28 to RO2-29
BRIGHTWATER REGIONAL
WASTEATER TREATMENT SYSTEM

Facility RE*ESI5-7.RO2-29 to RE*ESI5-7.RO2-28 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Streams & Rivers (shore cran	2	1	2
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 28

Facility RE*ESI5-7.RO2-29 to RE*ESI5-7.RO2-28 No. 2

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Streams & Rivers (shore cran	2	1	2
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 28

Table refers to Figure A.18b of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.

Facility RE*ESI5-7.RO2-29 to RE*ESI5-7.RO2-28 No. 3

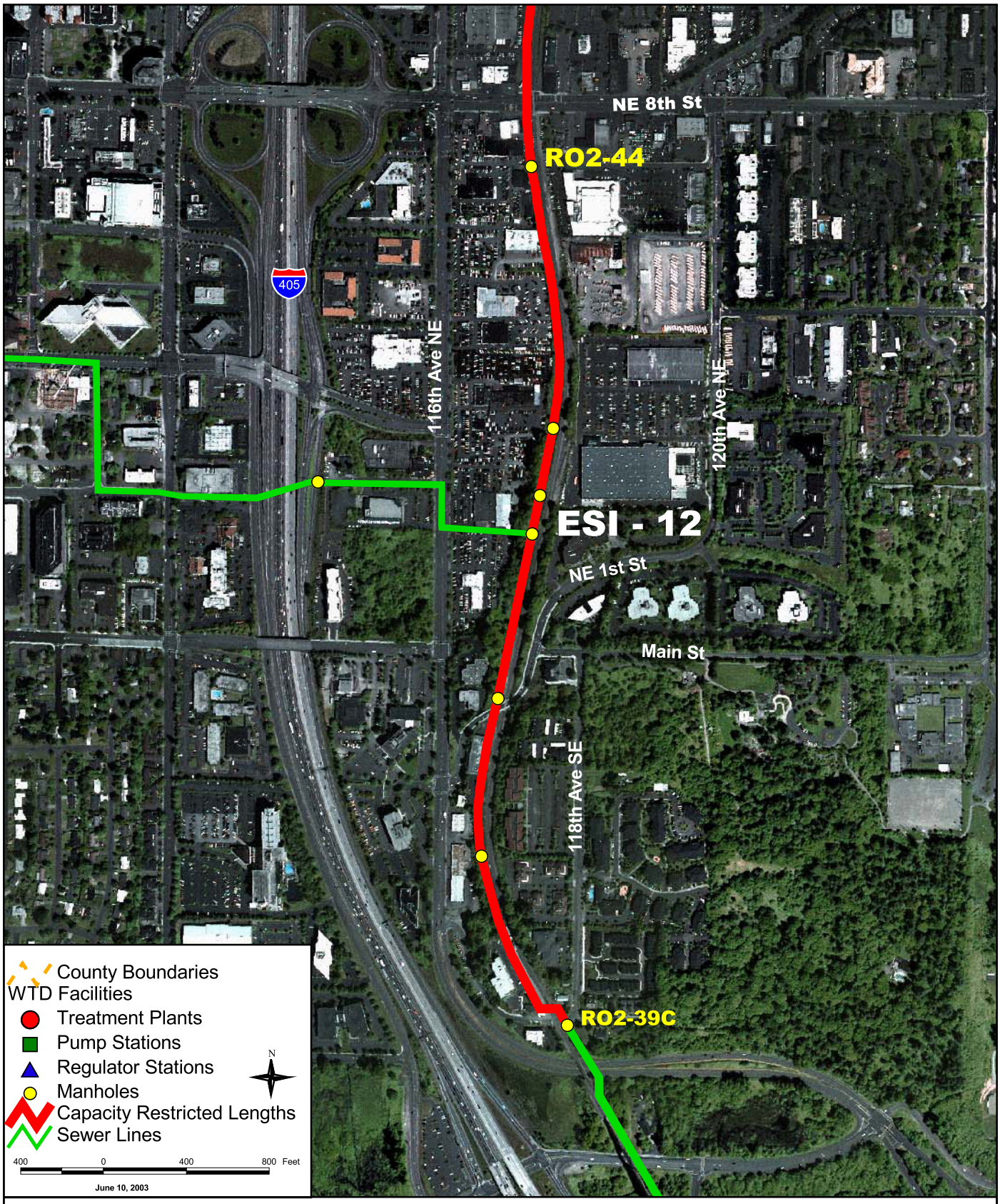
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	Streams & Rivers (shore cran	2	1	2
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Divert to waterway	4	1	4
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 28

Table refers to Figure A.18b of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
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Natural Resources and Parks
Wastewater Treatment Division

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Figure A-19a
Capacity Restricted
King County Interceptor
ESI-12: RO2-44 to RO2-39C
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI12.RO2-41A to RE*ESI12.RO2-41 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 18

Facility RE*ESI12.RO2-41 to RE*ESI12.RO2-40 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 18

Table refers to Figure A.19a of Brightwater No Action Alternative
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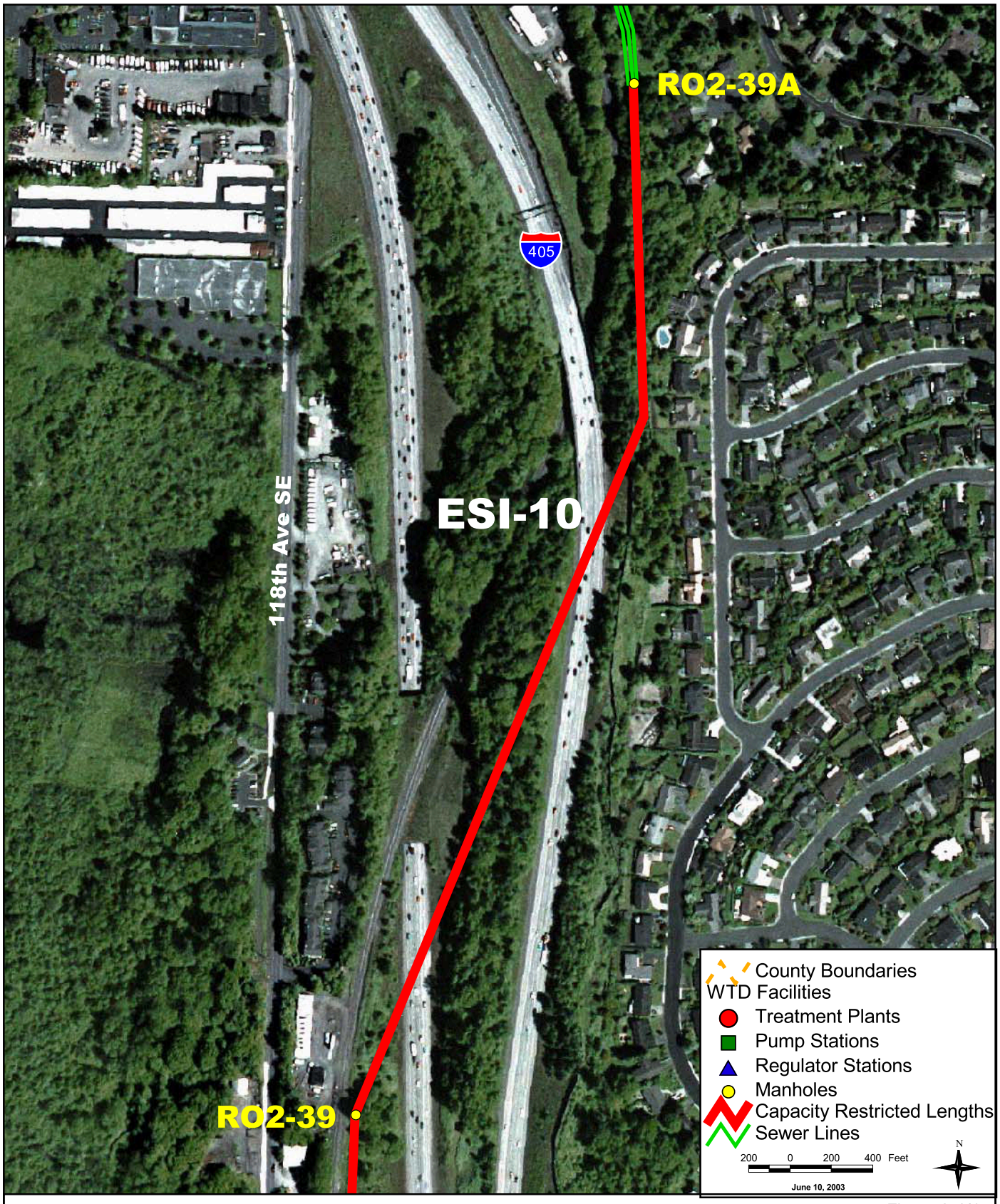

King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-19b
Capacity Restricted
King County Interceptor
ESI-10: RO2-39 to RO2-39A
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI11.RO2-39A to RE*ESI9.RO2-39 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	D < 10 ft.	0	1	0
Cost Factors	Groundwater Table (above in	No water table	0	1	0
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	Blocks access main, state or	4	1	4
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Parallel system exists	0	1	0
Service Factors	% Hydraulic Capacity (Avg. P	50% to 70%	1	1	1
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Consideration	Sensitive Areas Cleanup	Parks, restoration required	2	1	2

Total Score: 26

Table refers to Figure A.19b of Brightwater No Action Alternative
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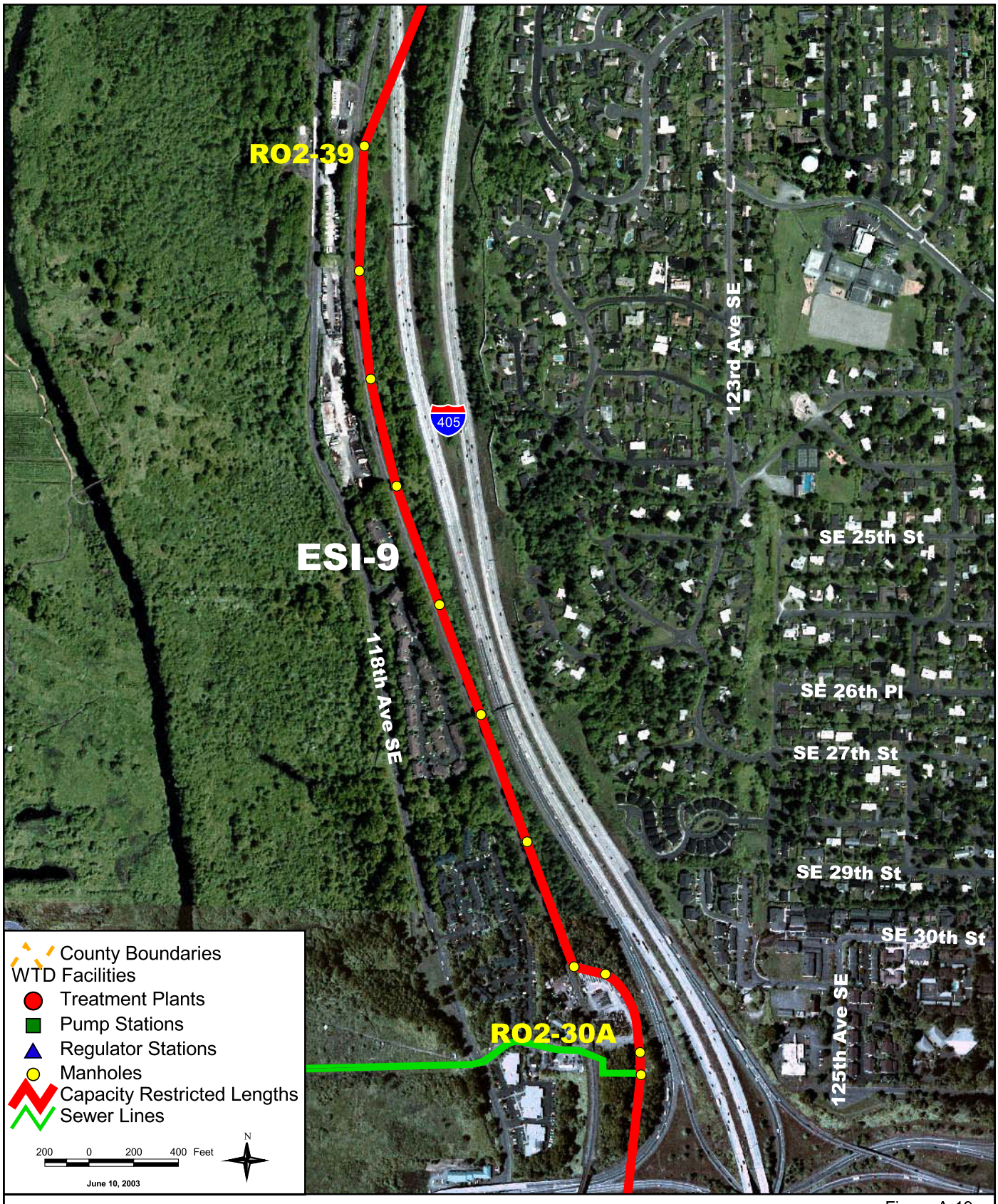

King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

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Figure A-19c
Capacity Restricted
King County Interceptor
ESI-9: RO2-30A to RO2-39
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI9.RO2-35 to RE*ESI9.RO2-34 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 17

Facility RE*ESI9.RO2-32 to RE*ESI9.RO2-31 No. 1

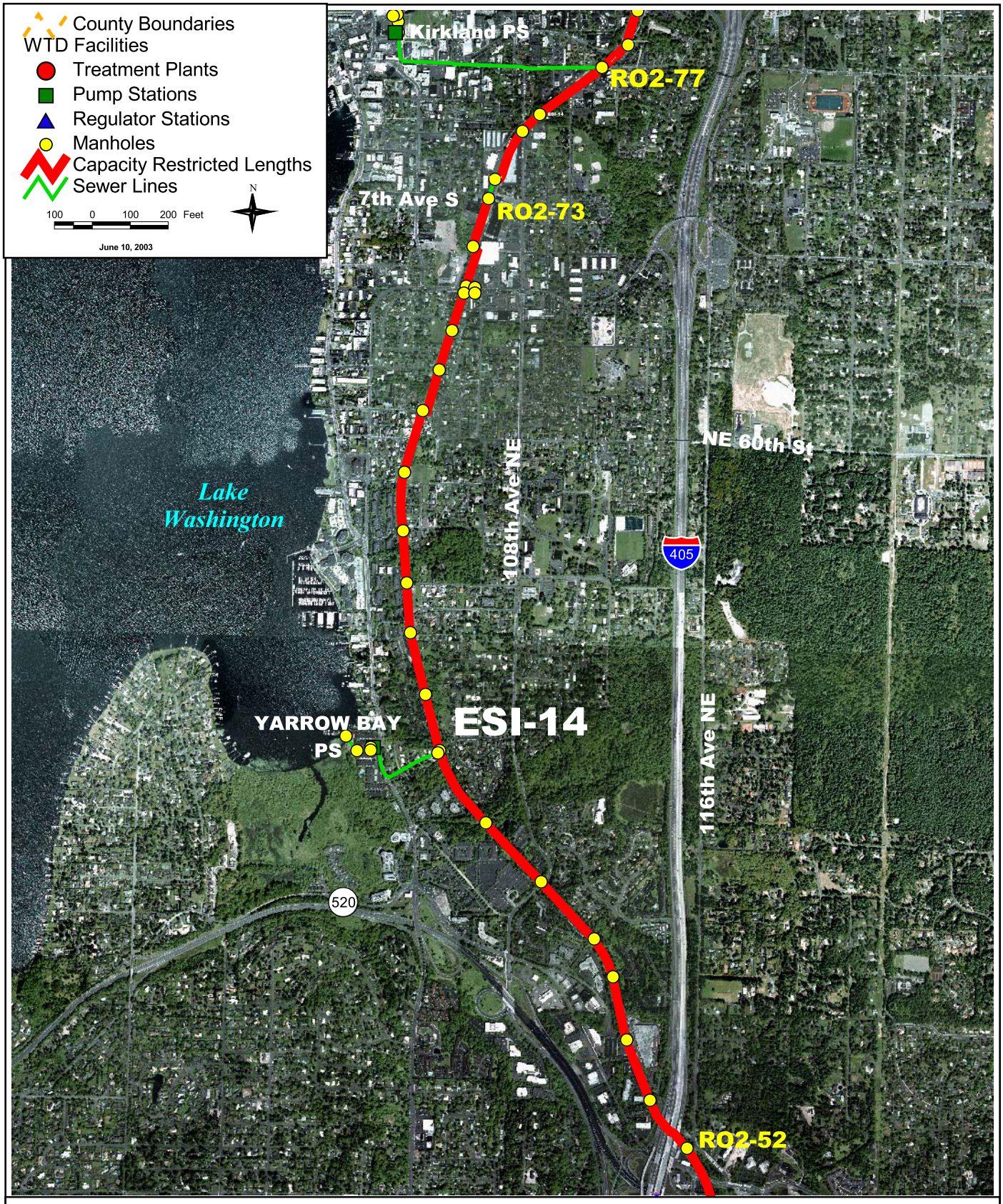
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 15

Table refers to Figure A.19c of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-20a
Capacity Restricted
King County Interceptor
ESI-4: RO2-52 to RO2-77
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI14.RO2-61 to RE*ESI14.RO2-60 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Residential, Rurl areas	1	1	1
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Limited alley, drive within 25 f	1	1	1
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 17

Facility RE*ESI14.RO2-66 to RE*ESI14.RO2-65 No. 1

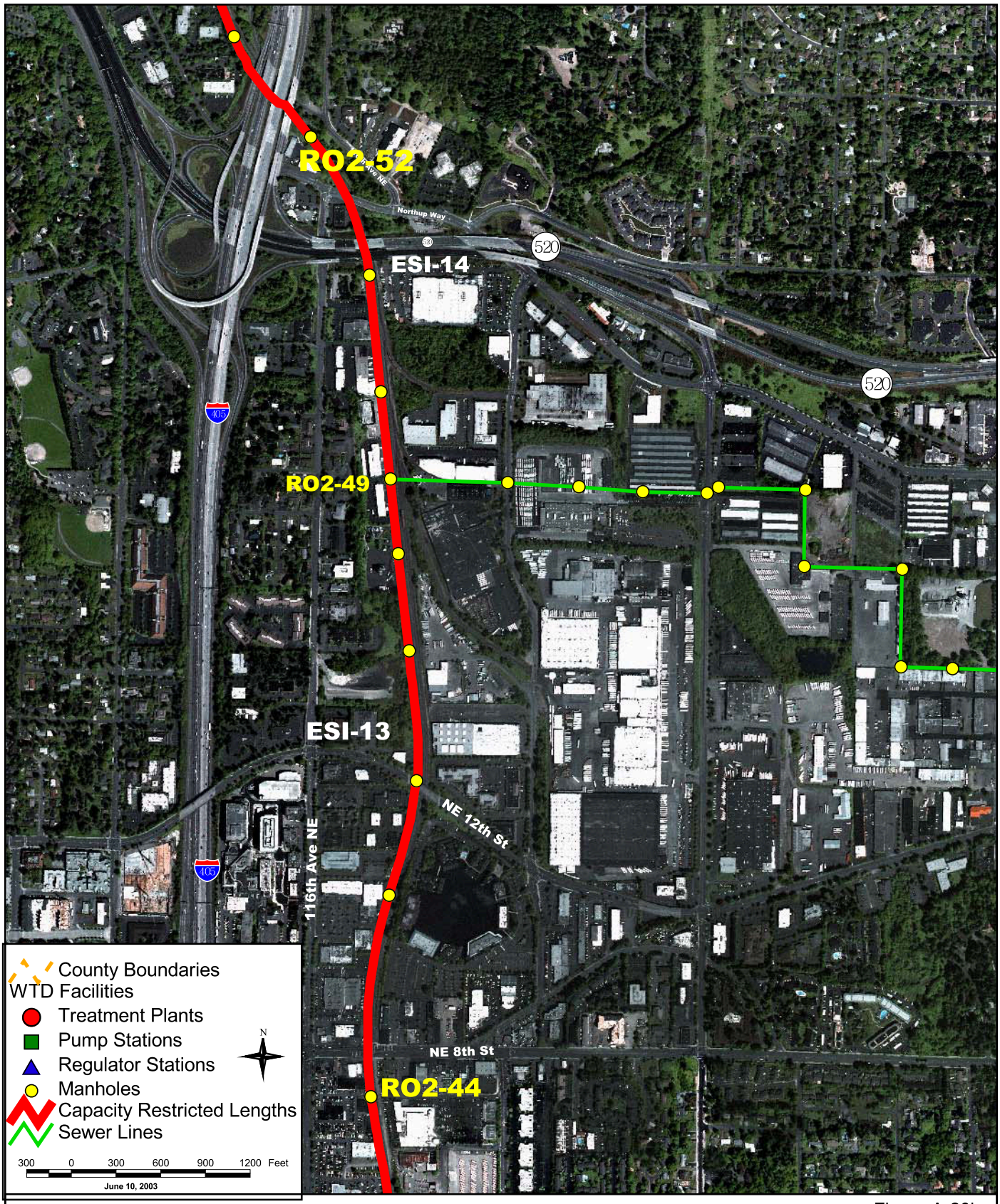
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	0 to 2 ft.	1	1	1
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Structural Impacts	4	1	4
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Poor access,drive 25 to 100 ft	2	1	2
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 22

Table refers to Figure A.20a of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-20b
Capacity Restricted
King County Interceptor
ESI-13: RO2-44 to RO2-52
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*ESI13.RO2-50 to RE*ESI13.RO2-49 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 20

Facility RE*ESI13.RO2-46 to RE*ESI13.RO2-45 No. 1

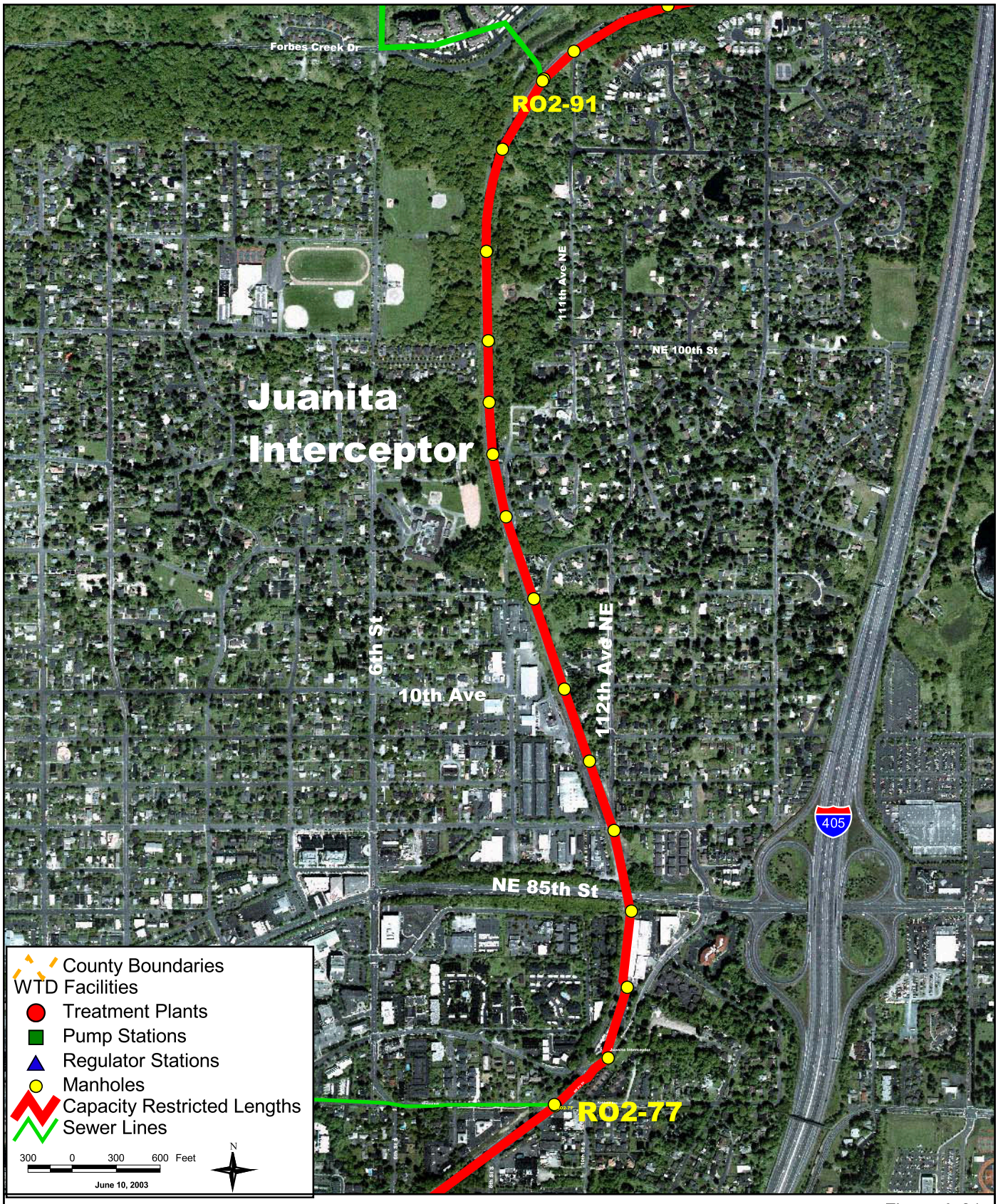
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	10 to 20 ft	4	1	4
Cost Factors	Soil conditions (above invert)	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Structural Impacts	4	1	4
Surface Impacts	Traffic	Major Structures, freeway an	8	1	8
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Limited alley, drive within 25 f	1	1	1
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 40

Table refers to Figure A.20b of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-21
Capacity Restricted
King County Interceptor
Juanita Int: RO2-77 to RO2-91
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*JUANITA.RO2-78 to RE*ESI14.RO2-77 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 19

Facility RE*JUANITA.RO2-79 to RE*JUANITA.RO2-78 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 19

Table refers to Figure A.21 of Brightwater No Action Alternative
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King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

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Figure A-22
Capacity Restricted
King County Interceptor
Redmond Int: RO2-91 to RO2-103
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility RE*JUANITA.RO2-81 to RE*JUANITA.RO2-80 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	Disrupt maj. struct. or crtical	8	1	8
Surface Impacts	Acccess	Limited alley, drive within 25 f	1	1	1
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 25

Facility RE*JUANITA.RO2-83 to RE*JUANITA.RO2-82 No. 1

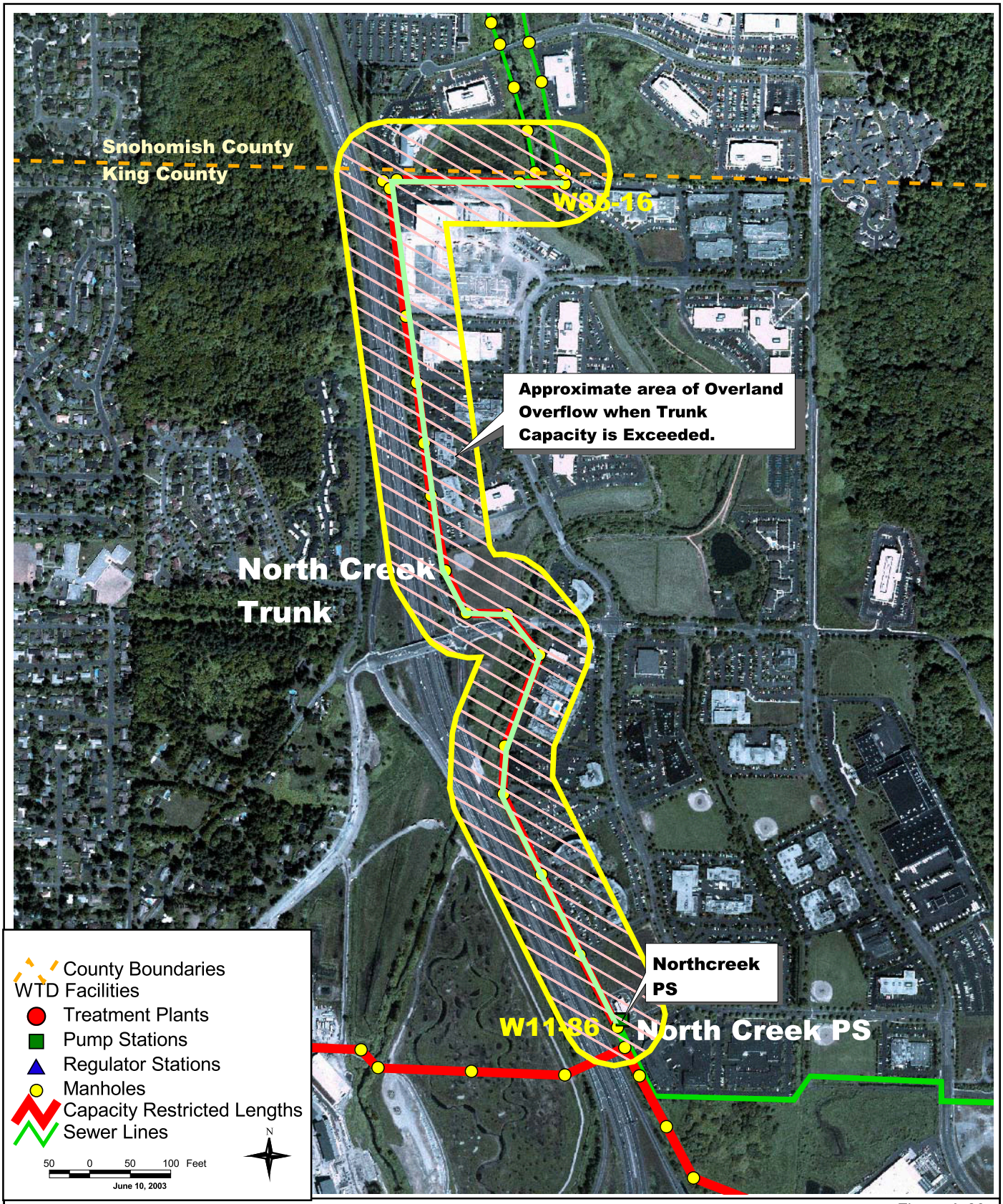
Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (above in	2 to 10 ft.	2	1	2
Cost Factors	Soil conditions (above invert)	Stable, unstable D < 6 t.	0	1	0
Cost Factors	Pipe Diameter	More than 5 ft	2	1	2
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Undeveloped	0	1	0
Surface Impacts	Traffic	No Road	0	1	0
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Drive > 100 ft., no easment, r	4	1	4
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg. P	N/A	0	1	0
Service Factors	Volume (Million Gallons/Day)	> 15 MGD	8	1	8
Environmental Consideration	Receiving Water Body	N/A	0	1	0
Environmental Consideration	Sensitive Areas Cleanup	Spills into develp. areas, clea	1	1	1

Total Score: 20

Table refers to Figure A.22 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division

Brightwater Predesign: King County is proceeding with preliminary plans and designs for the BW proposal. This ongoing work will not limit the choice of reasonable alternatives to be selected at the end of the EIS process.

Figure A-23
Capacity Restricted
King County Interceptor
North Creek Trunk: W11-86 to W85-86
BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

Facility WW*NCREEK.W85-06 to WW*NCREEK.W85-05 No. 1

Rank High Significant Consequences (A3)

Detail Scores

Group	Factor	Range	Score	Weight	W.Score
Cost Factors	Depth of Burial to Invert (D)	10 ft. to 25 ft.	1	1	1
Cost Factors	Groundwater Table (abov	Pipe buried underwater	8	1	8
Cost Factors	Soil conditions (above inver	Unstable & 6 ft. to 15 ft.	1	1	1
Cost Factors	Pipe Diameter	2 to 5 ft.	1	1	1
Cost Factors	Waterway	N/A	0	1	0
Cost Factors	Location	Paved Surface	2	1	2
Surface Impacts	Traffic	2 lane roads	1	1	1
Surface Impacts	Location	N/A	0	1	0
Surface Impacts	Acccess	Open	0	1	0
Service Factors	Redundancy	Bypass overland	2	1	2
Service Factors	% Hydraulic Capacity (Avg	N/A	0	1	0
Service Factors	Volume (Million Gallons/Da	2 to 10 MGD	2	1	2
Environmental Considerati	Receiving Water Body	Stream, Wetland	8	1	8
Environmental Considerati	Sensitive Areas Cleanup	Spills into develp. areas, cle	1	1	1

Total Score: 27

Table refers to Figure A.23 of Brightwater No Action Alternative
The criticality data presented represents the location (within the segment) with the highest significant consequences if an overflow were to occur. It does not necessarily reflect the data for an overflow event.